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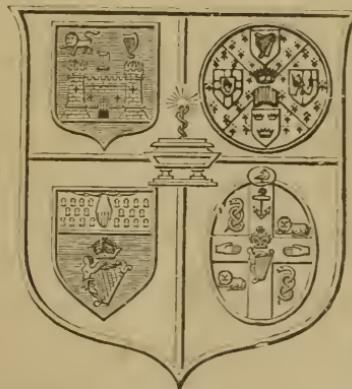
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THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

APRIL 1, 1898.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XV.—*A Case of Recurrent Idiopathic Pneumothorax, without Effusion, ending in Recovery.*² By J. MAGEE FINNY, M.D. Dubl.; Past Pres. R.C.P.I.: King's Professor of the Practice of Medicine; Clinical Physician to Sir Patrick Dun's Hospital.

THE subject of my communication is that of pneumothorax occurring in a previously healthy young man, without any effusion, and ending in recovery—to be followed by a complete recurrence, without effusion, and again by recovery. The rarity of such instances may possibly enhance its interest, and make it worthy of a place in the Transactions of the Royal Academy of Medicine.

For the following notes I am indebted to my clinical clerk. Mr. (now Dr.) William Moore, M.B. :—

CASE.—J. B., aged eighteen, stableman, was admitted on the first occasion to Sir Patrick Dun's Hospital on 6th Nov., 1897. He states that up to 3rd inst. he was quite well, but that on getting up that morning he felt a heavy weight all across the top of his chest, and when going to work he was suddenly taken with so violent a pain that he had to turn back. On his return home he went to bed, but he could not remain in it from pain in his chest and inability to breathe. He found that lying on the left side increased these

² Read before the Medical Section of the Royal Academy of Medicine in Ireland on Friday, March 11, 1898.

symptoms, and yet he was not very much better when up. This sudden illness came on without any previous illness or delicacy, strain or violence, and there was an absence of all cough or night-sweats preceding it. He says there is "no consumption" in any individual of his family, near or distant.

The day following the advent of his illness the pain left his chest almost entirely, except a slight catch in the upper part of the left axilla when he coughed. He has been ever since free from all pain and difficulty in breathing, and he can lie equally well on either side; and, except that he had been told by the dispensary medical officer of the necessity of seeking medical care, he should not have thought himself sufficiently ill as to look for admission to the hospital.

Present Symptoms.—On admission—three days after his being taken ill—he presented no apparent evidence of any sickness in aspect, manner, or decubitus, except that his weight was but 8 st. 13 lb., and his face and neck were covered with acne vulgaris. His respirations were easy (28); pulse, 96–100; temperature, 98°.

Physical Examination.—Inspection showed the left side fuller under the clavicle than the right, while its movements on respiration were very slight. The cardiac impulse was visible in the epigastrium and to the right of the sternum, and by palpation the heart's beat was to be felt to the right of the sternum in the parasternal line. There was complete loss of vocal fremitus over the whole of the left side. *Percussion* gave a hyper-resonant note over the cardiac region, and extended from the clavicle down to the seventh rib and the costal arch in front, and to the twelfth rib behind, while it extended quite to the middle of the sternum at the manubrium, and to the right sternal line at the level of the third rib. In the interscapular region the percussion note was not tympanitic, rather dull in tone, and probably due to the condensation of the collapsed lung at its root. In this region there was slight amphoric breathing. The respiratory murmur was inaudible everywhere over the left side, and vocal resonance very badly marked. Metallic tinkling was to be heard occasionally over the lower part of the chest, but it was very indistinct, and not induced by coughing or change of posture, while the *bruit d'airain* was beautifully demonstrated. There was a complete absence of all succussion signs. At the level of the nipple measurement gave the right side $17\frac{1}{4}$ inches, and the left or affected side $16\frac{1}{4}$, or an inch less than the healthy side. On deep inspiration the right side expanded half an inch, the left side *nil*.

The heart-sounds were normal, though not heard in their natural position, but best at the fourth right intercostal space near the sternum. It was quite apparent then that the left pleural sac was full of air, filling it to its fullest limits and displacing the heart and mediastinal contents to the right of the sternum, and the stomach downwards well below the costal arch.

For a few days the metallic sounds were more or less imperfectly audible, but they then ceased. The amphoric breathing soon disappeared, and at no time throughout the patient's stay in hospital were there any signs of effusion, such as dulness on percussion in the lower region of the thorax, nor any splashing sounds. The *bruit d'airain* also disappeared about the 20th of November—that is, in about a fortnight after admission.

Progress.—The further progress of the case was unmarked by any change of symptoms, and the patient, who expressed himself as being always in the best of health, was allowed up daily, and he had an excellent appetite. His temperature was usually subnormal—about 98°, and occasionally down to 97°, and only on five occasions it was 99°—and the pulse ranged 70-80. He slept well. No medicine was deemed necessary.

Physical examination revealed that from about November 26 the air in the pleural sac was being absorbed, for in addition to the cessation of the echo sound on striking a coin—already referred to—the heart gradually returned to the left side, and on November 30th it was recorded “to be felt and heard beating in its normal position.” And later on the apex beat was marked as beating in the left parasternal line, but between the fourth and fifth ribs—an inch higher than normal.

During this process of return of the heart an interesting clinical phenomenon was noticed, although the patient made no complaint, pointing to the existence of a dry pleurisy in the neighbourhood of the pericardium. Thus, on Nov. 26th a friction sound was audible over the lower $1\frac{1}{2}$ inches of the sternum, to the left of the middle line and extending into the epigastrium. The sound was that of a double rubbing character, and synchronous with the heart's sound, and yet it increased on inspiration and diminished on expiration. This, by some observers, was taken for a pericardial friction, but I considered it was exopericardial in its nature, and produced by the impact of the pericardium against the double fold of the left parietal pleura, and by the movement of the heart the layer lining the ribs and that reflected from the sternum over the pericardium came into contact, and gave rise to a friction sound. In fact, it was a rubbing of *one layer* (the parietal) against

itself, and not produced by the pulmonic or visceral layer against the parietal, as is usual in ordinary pleurisy.

Along with this sound of rubbing a metallic tinkle or echo was sometimes heard in this the usual cardiac region. A few days later (Nov. 30th) the friction sound was still more marked, and was audible from the third to the fifth left costal cartilages, and extended outwards to one inch within the nipple line, and downwards along the sixth and seventh cartilages—*i.e.*, well below the level of the returning heart. It was heard, as formerly, with the heart-sounds, though increased with the act of inspiration, and also on that day it was not confined to the time of the heart-sounds, but was audible also during inspiration.

Gradually, as the signs of air in the pleural cavity diminished, the respiratory and vocal sounds became more distinct, and were fairly audible over the back and axilla; and the left side (though it now contained the heart) measured an inch less than the right. The patient left hospital on December 17, having gained half a stone in weight and looking well and healthy.

After leaving he went back to his work as a stableman, and in a fortnight's time as he was feeling as well as ever, he undertook some heavy lifting work with the manure fork. While thus engaged he felt a little "crackle" in the top of his left chest, but did not mind it much, until on getting out of bed next morning (December 31, 1897) he experienced a sharp pain in his left side, with great difficulty of breathing and weakness, and he fainted. He had a shrewd guess as to what had happened, as he recognised the old symptoms. He remained at home for a few days, and when admitted, on January 5, 1898, his left pleura was again found full of air, and the heart displaced to the right side of sternum, just as in November. He had no fever or any distress, and his weight was the same as when he had left hospital, December 17, 1897 (9 st. 5 lb.).

After remaining in hospital till February 3, 1898, he went home weighing the same, and the air in the left pleura was again diminishing, and the heart returning to the left. At no time was there any dulness or any sign of effusion present. The "echo note" by striking a coin was typically demonstrable for three weeks, but neither metallic tinkle nor amphoric respiration was ever noted. I did not see him again until March 4, when his weight was 1 lb. heavier, and the heart was beating in its normal position; the lower part of the left side expanded equally with the right, though it measured an inch smaller. Vocal fremitus and resonance were feeble on the affected side, and respiration was not

audible under the clavicle, and in this place the percussion note was somewhat tympanitic. It suggested the idea that while the lower part of the chest was well filled by the expanding lung the upper still contained some air in the pleura.

He was in excellent health and spirits and expected to return to work at once. I warned him against unusually heavy work for some weeks to come as a wise precaution.

There were some unusual physical signs on which a word may be said :—

1. The existence of amphoric respiration in my case in the earlier period, when the aperture was closed. It was not loud, it was limited to the left interscapular region, and it disappeared after the fifth day of residence in hospital.

Dr. West^a noticed in some of his cases of so-called idiopathic pneumothorax, in which there was no effusion, that amphoric breathing was frequently audible, even when the opening is closed; but he does not venture upon an explanation. The idea that it might be conveyed from the root of the compressed lung or of the healthy lung is negatived by the fact that it disappeared in the course of the case, while those supposed factors remained the same, so far as we could make out. Moreover it was absent in the whole course of the relapse.

As Dr. Clifford Allbutt, in Quain's Dictionary of Medicine, says, "In rare cases we may detect by amphoric breathing the entrance and exit of air by a free opening, but in such cases fluid is always present as well." On the other hand it is not easy to explain its occurrence where the opening is closed, or of the valvular nature, and where there was no expansion of the side during inspiration, nor falling in during expiration.

2. Another puzzling sign was the metallic tinkle which was audible for ten days, and yet I could never satisfy myself that there was any fluid present at any time. It is therefore no longer to be taught that the metallic tinkle is solely due to either a drop falling from the dome of the pleural cavity on the subjacent liquid, or to a bubble bursting on the surface of the fluid.

3. The other clinical physical sign worthy of attention was the friction sound audible over the lower left sternal region, which was synchronous with the movements of the heart—even though increased and altered by the act of respiration—and which might readily have been called pericardial “to and fro” friction sound. I considered it to be due to the heart’s movements on its return to the left side causing a rubbing, not of the pericardial layers, but of reflected parietal layers of the pleura. When the pleural cavity was fully distended with air, the left lung and overlying visceral layer of pleura were naturally retracted towards the root, and widely separated from the parietal layer; while this latter was stretched towards the right side of the sternum, as it formed the left lateral boundary of the displaced anterior mediastinum. Now, when the air of the pneumothorax was being absorbed, and the right lung was gradually expanding with deeper respirations, the heart returned towards its normal position, and carried with it the parietal layer of the left pleura, so that this exopericardial layer was folded on itself, and a friction was induced at each cardiac movement. It never extended over the whole of the praecardium, nor to the right of the sternum, and it was unaccompanied by any symptoms of pericarditis—pain, altered pulse, rise of temperature, or any discomfort—while the patient was up and about every day.

The explanation of its being intensified during inspiration is, probably, that, although the left side was nearly motionless during the act of breathing, the movement of the right side and the pressure of the right lung against the air contained in the left pleura caused an altered relation of the pericardium and the reflected layer of the *pleura costalis*, and therefore this extra movement would intensify any friction sound made between the overlapping folds. That the movement of the left lung had nothing to say to its production was evident by the metallic echo these sounds produced, by the tympany which existed over the sternum and the front of the left thorax, and by the fact that the cyrtometric measurements of the chest, taken two inches below the level of the nipple, showed the left side to be $1\frac{1}{2}$ inches smaller than the right; and lastly, by the heart’s impulse being felt between the

fourth and fifth ribs instead of in the fifth intercostal space. In fact, as I understand the pathological physiology of the process, the return of the heart was due to the diminished pressure of the absorbing air on the left side being overcome by the vigorous expansion of the right lung, and in direct proportion to that lessened pressure the ribs of the left side fell in and the diaphragm ascended.

Now, if we study the history of pneumothorax, the *cause* of the disease is at times readily explained, but at times again it is quite otherwise.

If we exclude injury to the thorax, operations, and thoracentesis, it is practically in 90 per cent. of cases the result of a ruptured lobule and its pleural covering, which had been previously weakened by ulceration, and the factor which induced the ulceration was tubercular deposit. A cavity, large or small, has existed for a longer or shorter time, and then ruptures under a little extra strain, or without any exciting cause, somewhat analogous to the occurrence of haemoptysis as the first symptom of pulmonary phthisis being due to a prior tubercular deposit and ulceration.

There are, indeed, a few cases recorded of pneumothorax due to rupture of the air vesicles under great strain; but these are open to the criticism as to whether tubercle had not already undermined those vesicles prior to the strain and the rupture. Dr. F. de H. Hall has had thirteen cases of pneumothorax occurring in apparently healthy persons who made recoveries in from five days to six weeks. Many of these, however, developed phthisis afterwards.

It has been asserted that emphysema may be a cause of pneumothorax, but against this Dr. West adduces a reference to an excellent paper on the subject by Zahn (Virch. Archiv., Vol. CXXIV., p. 265), in which, after a careful analysis of a large number of records, the author stated that only two cases had been conclusively shown to have resulted from a rupture of an emphysematous bulla.

The peculiarity in this present case is that the young man was not suffering in any way, or to the slightest degree, from lung disease. He had no cough, nor even slight cold, when the lung gave way, and it occurred irrespective of any unusual effort or straining on the patient's part on the

first occasion of his illness. He was going to his work in the early morning, without hurry or any excitement, when he suddenly felt a pain in his left side. Unfortunately for the sake of diagnosis he was not seen until four days after its occurrence, and we are at a loss to know how severe were the symptoms, or how great the shock. Neither can have been very much, as after one day the patient complained of nothing beyond a slight pain across the sternum between the breasts, and said he felt quite well on the day of admission. On the second attack the shock seemed greater, as it induced faintness.

This is, I think, a very remarkable fact, and one which we do not sufficiently recognise—namely, that a rupture of a lung may take place, air pass through the aperture from the lung into the pleural sac, and so fill the pleura to its extreme limits that the lung is collapsed and the heart and the mediastinum displaced to the right side, without more than momentary distress of breathing and slight discomfort, without haemoptysis, cyanosis, or much circulatory disturbance. The only other causation of collapse of the lung and displacement of the heart, with which we are familiar, is the effusion of fluid in the pleura, the result of acute pleuritis; and in such cases, if at all rapidly produced, the process is always accompanied by dyspnœa, cough, and the expectoration of mucus, and very frequently the sputa are bloody, while the decubitus, when the pleural cavity is filling up with fluid, is characteristic, and these symptoms are generally in the direct proportion to the suddenness and rapidity of the lung collapse. I do not now allude to a latent pleurisy, with which we are all familiar, where the discovery of the side being full of water is unexpected; for in such cases the process is very slow and gradual. Yet in my case the left lung was suddenly and completely rendered airless, and in a day or two, except an examination of the chest had been made, the patient, so far as his symptoms were a guide, might readily have passed all notice as suffering from a grave thoracic disease.

A very similar case has been recorded by Samuel West, M.D. Oxon.,^a which is worth mentioning in full:—

^a Loc. cit.

"A man aged forty-six, while at work experienced pain in his left side, and his breathing became a little short; he did not, however, desist, but kept to his work. He was seen next day by a medical man, who, detecting the signs of pneumothorax, sent him to hospital, although the man himself did not think he was ill. Physical examination revealed the whole of the left side tympanitic to the very margin of the ribs; the heart was displaced to the right, and the impulse was under the right nipple, and the left pleura was stretched $1\frac{1}{2}$ inches to the right at the third rib. Amphoric respiration and the bell sound were audible in the left interscapular region.

"This patient soon recovered, gaining 14 lbs. during his stay of a month in hospital, and all the signs disappeared, though two or three slight attacks of haemoptysis occurred. Ten years later he was at his work, and had never been ill in the interval. The chest was reported normal."

In the majority of cases the most striking group of symptoms of this disease are those due to its sudden and severe onset, such as pain in the side, dyspnoea, and suffocation, with the pallid face, clammy skin, and compressible and failing pulse of collapse. As Dr. West points out, this is the period of greatest danger, and death may be the direct result. As a rule, he says, the mortality of pneumothorax, from all causes, may be stated to be 77 per cent. Of these fatal cases 46 per cent. occur in the first week, and one-third of that number on the first day, of suffocation. Should this period be survived, death may occur from empyema or exhaustion, or lastly, the original disease, of which pneumothorax was but a complication, may make rapid strides and carry off the patient.

As already stated, my case—the subject of this communication—is a remarkable exception to these grave symptoms, although hardly so much so as the case of Dr. West's patient to which I have referred above.

Another point of exceptional interest to which I would specially refer in my case, is the fact that the entrance of air into the pleural sac, so great as to fill the sac to its extremest limits, was not followed by effusion, either serous or purulent. This is an extremely rare condition. It is

one, however, which is well recognised, and has been noted many years ago. Probably the cause may be traced to the fact that the air was introduced through a rupture of a lung very little, if at all, previously diseased, and that the aperture was so placed that there was no free communication with the external air and the pleura after its first introduction, and thus the entrance of germs and bacteria was limited. In almost all the recorded cases of pneumothorax where a phthisical cavity had existed prior to its occurrence, the entrance of air was invariably followed by an effusion, usually purulent in its character (pyo-pneumothorax), and this is the experience of all hospital physicians. Curiously enough, as if to point my remarks, a fortnight after this patient left hospital well, another case of pneumothorax was admitted to the same ward, and bed, occurring in a man suffering from phthisis, and this patient has had the purulent effusion, and all the evidences thereof, and died of the exhaustion and septicæmia of the original disease in eight weeks.

Dr. West in 1883 presented before the Clinical Society of London (*Clin. Soc. Trans.*, Vol. XVII., p. 56) a series of 23 cases, compiled from various authors, of pneumothorax without effusion, in all of which complete recovery occurred, to which he added another case. Of these 24 cases, 4 were from phthisis, 4 probably of that nature, 5 were stated to have their cause in emphysema, 2 were from over-exertion in previously healthy and athletic persons, and 3 the result of injuries. As a matter of historical and local interest the first case was one recorded by Dr. MacDowal, of this city (not Dowel), and published in the *Dub. Hosp. Gaz.*, No. 15, Sept., 1856.

Dr. Brünnicke, of Copenhagen, in a valuable communication on the subject of pneumothorax, and which appeared as a translation in the *Dub. Hosp. Gaz.* (Nos. 7, 8, and 10, 1856), states that of 147 cases which he had collected and analysed, fluid was absent in but 16.

Again, more recently Dr. West (*loc. cit.*) has recorded 5 cases out of 130, in which effusion was noted for its absence. Two were phthisical, and the other three were—(1) the labourer whose case I have quoted; (2) a young man, aged twenty-two,

while playing football, who had had two previous attacks of pneumothorax; and (3) a girl, aged fifteen, while dancing.

Dr. Clifford Allbutt also contributes three cases, in Quain's Dictionary of Medicine, which came under his immediate notice, and all occurred in previously vigorous men—due to a strain at an oar in one, and to gymnastics in another, and in the third the cause was unknown. All these made good recoveries.

From the foregoing facts and references I may deduce the following conclusions:—

1. That simple or idiopathic pneumothorax is a very rare disease of the lungs and pleura.
2. That a repetition of the disease in the same lung is of still greater rarity.
3. That in a very small number of cases the entrance of air into the pleura—to stretch it to its utmost limits—does occur *without any effusion* of fluid, and this even may happen a second time in the same lung.
4. That the absence of fluid renders the disease less fatal than when air and fluid are effused.
5. That the presence of air in the pleura may occur without any febrile or constitutional disturbance.
6. That in the face of such possibilities we should be cautious as to giving too grave a prognosis when evidences of a ruptured lung and pleura are present, and particularly so when there is no previous disease.
7. That the tendency of such cases is towards spontaneous recovery, and, in the absence of urgent symptoms calling for relief, it is wiser not to employ surgical means to let off the effused air.

ART. XVI.—*A Study in the Surgery of Joints.* By J. S. M'ARDLE, F.R.C.S.I.; Surgeon to St. Vincent's Hospital, Dublin.

I HAVE already vigorously advocated the use of chloroform in the adjustment of complicated fractures, and now desire to call attention to the necessity for thoroughgoing surgery in the reduction of dislocations. I shall, for the moment, confine myself to a study of the ill-effects of injudicious manipulations of the elbow-joint after displacement backwards of both bones. We are all acquainted with the injuries so often detailed of tendons, vessels, and nerves, but we are not forewarned of the disasters which are of more frequent occurrence. We rarely see lacerations of vessels or nerves, while the number of cases we meet of partially reduced dislocations, complicated by epiphyseal separation or supra-condyloid fracture, is truly alarming. I hold that these are always due to violence in a wrong direction, and, for the most part, while the muscles of the arm are on the alert. There is no reason for undue haste in the reduction of these displacements. Nor is there justification for the application of undue force. If a dislocation does not yield to gentle effort, the muscles should be overcome by an anaesthetic, when usually no trouble is experienced in replacing the bones. A word-picture is poor compared with the views obtained on the operating table: but, assisted by the accompanying illustrations, I hope to make clear some of the untoward effects the presence of which dissection has verified.

If it be pernicious in recent cases to use violence in attempts at reduction, the folly of efforts at forcible reposition in old-standing dislocations is akin to criminal. This becomes impressed upon one more and more as occasions arise for opening the elbow-joint to undo the mischief arising from well-intentioned manipulations conducted with undue vigour.

When the olecranon is sawn across, the remnants of the lateral and posterior ligaments cut, and the condyles freed of muscular attachments, no little force is required to safely bring the parts into favourable position. How vigorous

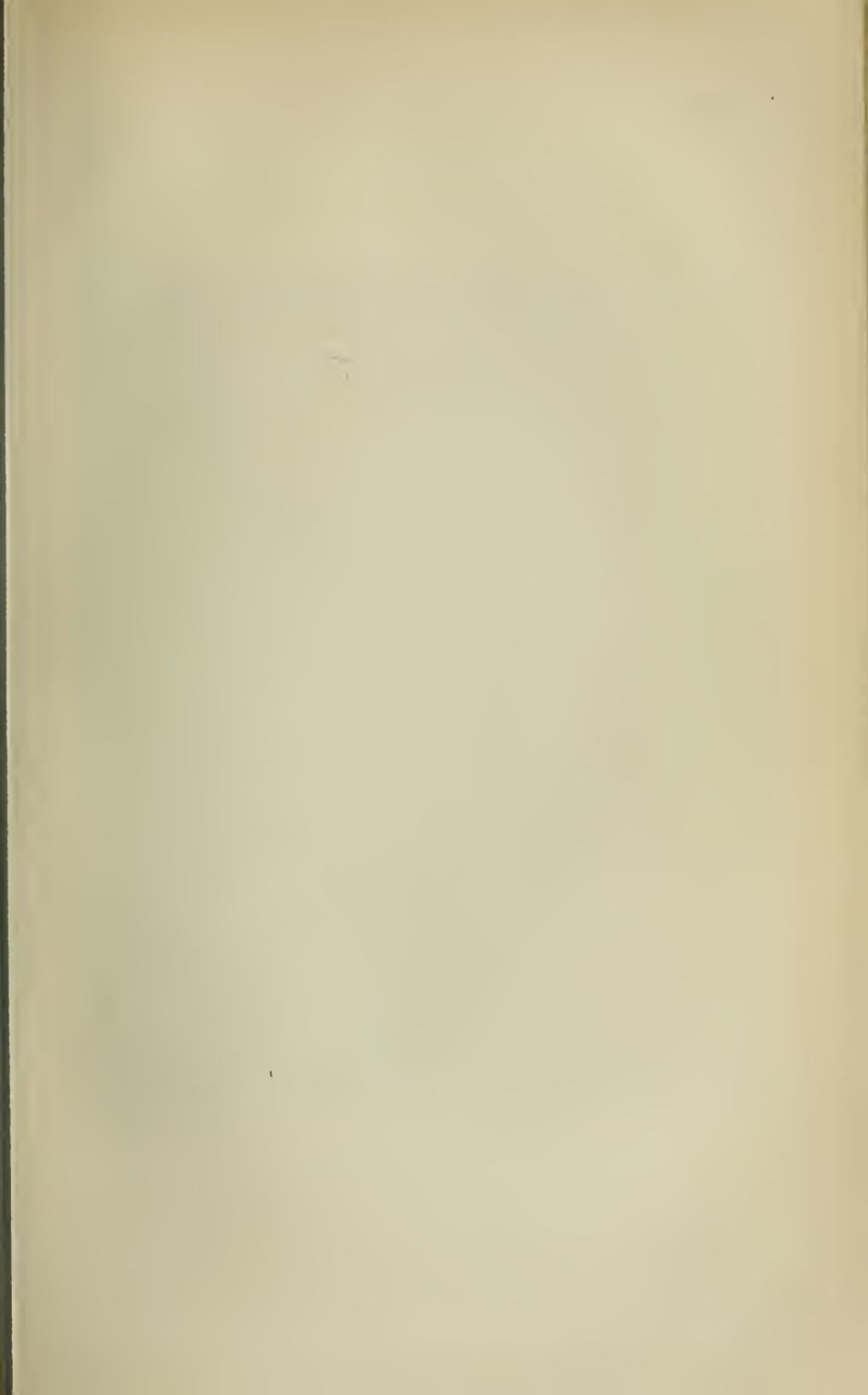


PLATE I.—MR. MARDLE ON JOINT INJURIES.



CASE I.—Showing tip of olecranon fixed in fossa.

must be the effort that will reduce an old-standing dislocation can only be understood when one has over and over again examined, as in these cases, the strength of adhesions, and the great difficulty in getting the coronoid process to glide without fracture over the trochlear surface of the humerus. My experience is that in young subjects the chief danger of attempting such reduction without anaesthesia, is injury to the epiphysis of the humerus; while in adults fractures of the coronoid or of the olecranon or anterior part of the head of the radius is more likely to occur. Any of these accidents is certain to be followed by great impairment of the functional activity of the joint.

I have in children seen fracture of the shaft of the humerus as a result of vigorous traction on the fore-arm, with the knee in the antecubital fossa; while in the adult overflexion of the arm when the bones were supposed to have been replaced has led to fracture of the olecranon. The first case to which I would call attention is of this class, and when I cut down on the joint the amount of fibroid tissue filling up the olecranon fossa and fixing the bones gave ample evidence of the vigorous procedures adopted to restore the bones to place, even after the olecranon had given way.

CASES—FIRST SERIES.

CASE I.—Mrs. C., aged fifty years, came under my care on April 4, 1897. Seven months before she had sustained a dislocation at the elbow-joint. After many violent efforts at reduction the bones were supposed to have gone into place. Later on passive motion was carried out, but with very little benefit, when I examined her the joint was greatly swollen, the enlargement being firm. There was practically no motion. On passing my finger along the posterior edge of the ulna a sharp edge could be felt towards upper end, and less than half an inch above, the tip of the olecranon could just be felt in the fossa, from which it could not be moved. Plate I. represents the condition more clearly than it can be described. As the arm was practically useless I carried out the following operation assisted by Mr. Tobin:—

A four inch incision (with its centre over the line of fracture) was carried along the posterior edge of ulna and over the triceps tendon. The fibroid tissue filling up the interspace between the fragments, and occupying the olecranon fossa, was thoroughly removed by the knife, and the osteotribe figured here. Vigorous

flexion of the arm now gave free access to the upper fragment of the olecranon which was found to be firmly fixed (as seen in

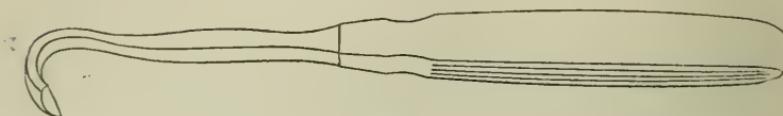


Fig. 1.

Plate I.) to the upper part of the fossa. A chisel was insinuated between this fragment and the humerus; and using it as a lever the bone was sufficiently elevated to be grasped by the lion forceps here depicted.



Fig. 2.

The jaws of this instrument, as seen, cannot come quite close, and so crushing of the bone is avoided. Fixed by this forceps, the fractured surface was sawn off, and the piece was freed by incisions on either side of the triceps tendon. Now the ulnar side of the fracture was refreshed by the saw here shown. I now

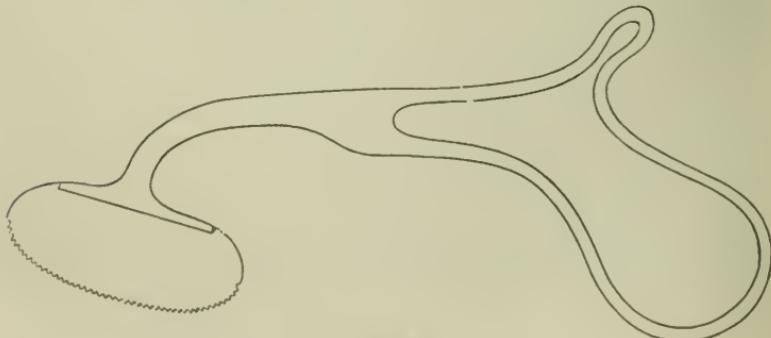


Fig. 3.

drilled the fragments and brought them together by No. 12 silver wire. The result of this is shown in the X-ray photo (Plate II.) taken six weeks after operation.

PLATE II.—MR. M'ARDLE ON JOINT INJURIES.



CASE I.—Showing fragment of ulna released and fixed by wire suture.



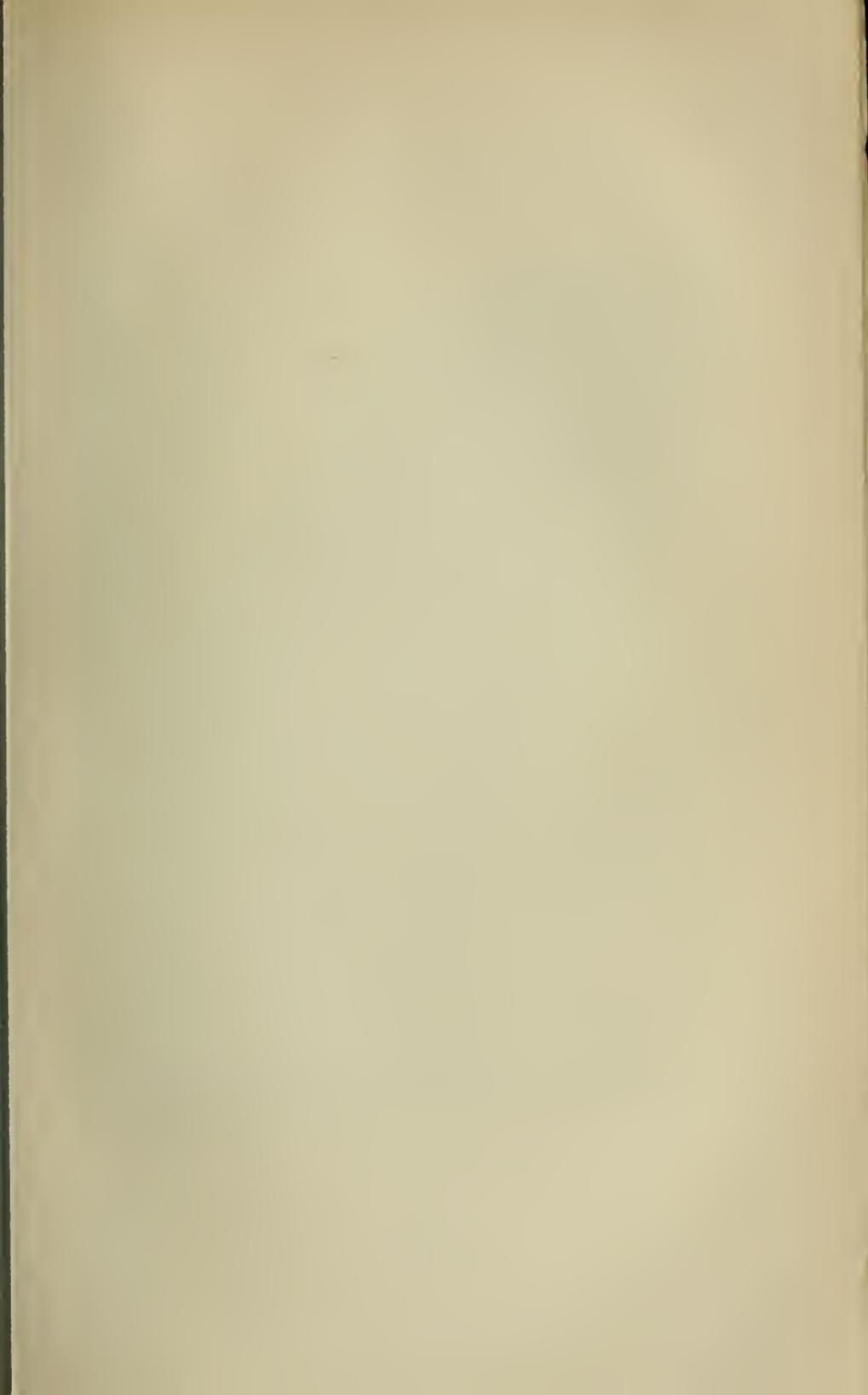
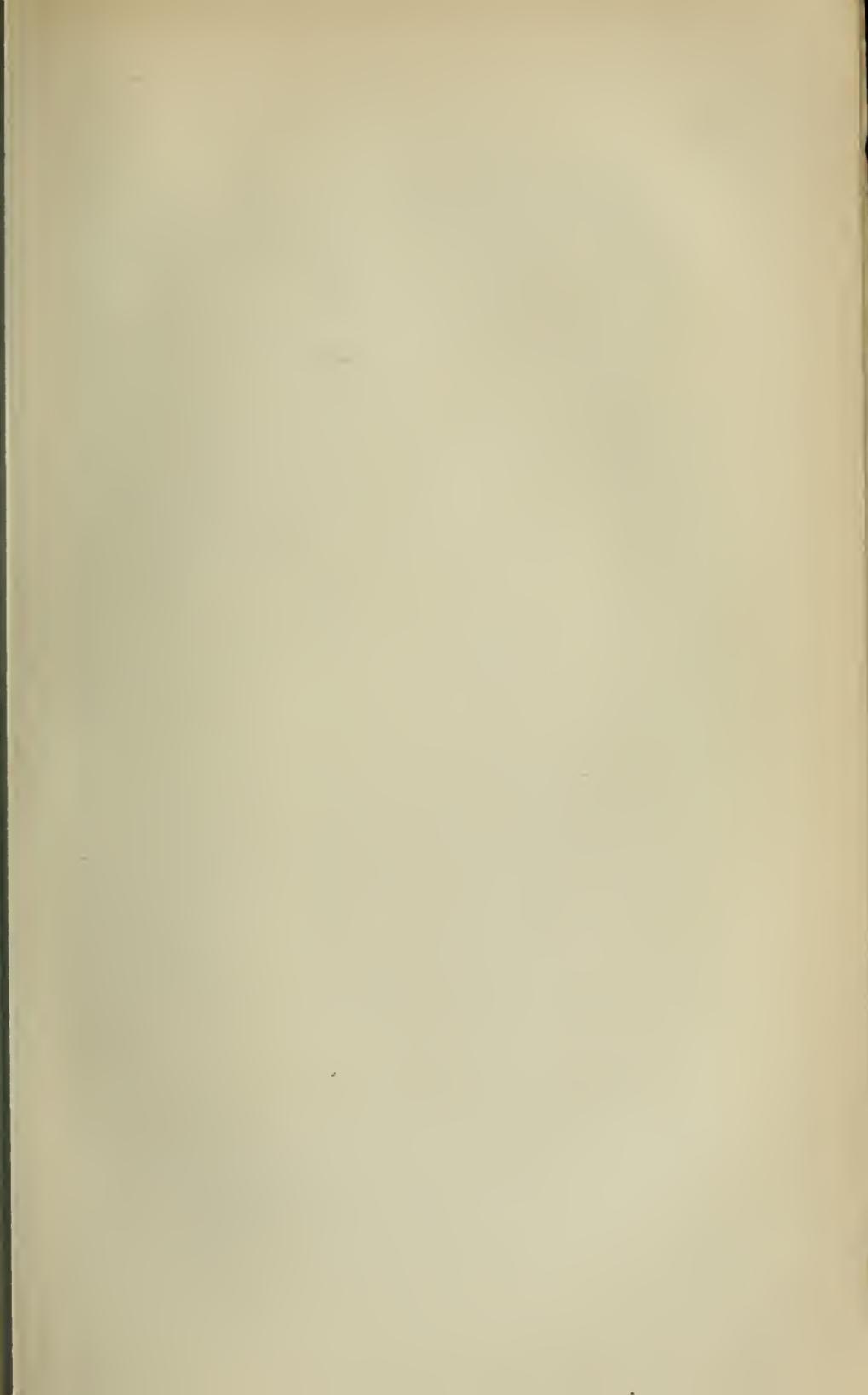


PLATE III.—MR. M'ARDLE ON JOINT INJURIES.



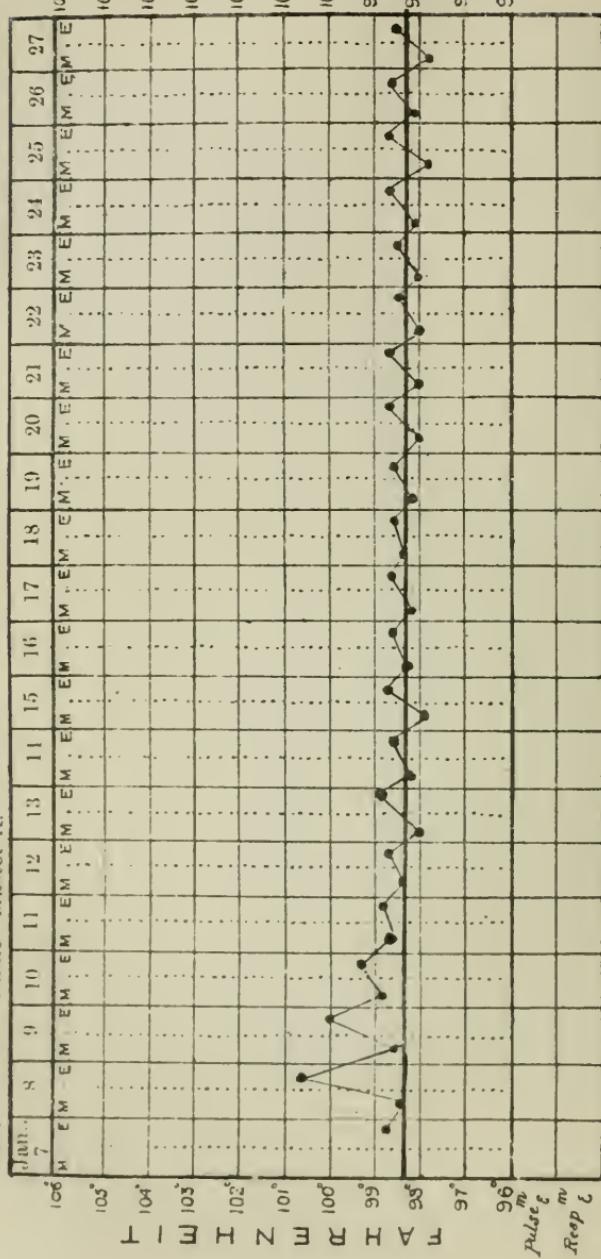
CASE II.—Backward dislocation of both bones at elbow.



CLINICAL CHART OF TEMPERATURE

Name—Master K.

1892.



Pulse
Respir.

The result in this case was everything that could be desired, motion being unrestricted by the eighth week. A study of this picture shows that only in the line of the wires is there any attempt at bony union even at the end of the sixth week, and it should convince us of the necessity for great care in passive movement of the joint, which should not be started before the end of the third week, and then only to a limited extent.

CASE II.—Master J. K., aged thirteen years, came under my care on the 7th January, 1898, and gave the following history. Early in August he fell from a donkey, and sustained a dislocation backwards of both bones of fore-arm; an immediate effort at reduction seemed to be successful, and after some days, passive motion was commenced. Little success, however, attended this procedure, and although it was continued for many weeks no appreciable improvement occurred. I found the arm in a condition of almost fixed extension, and on taking the X-ray Photo (Plate III.), it was seen that the dislocation was unreduced. Effusion into and round the joint had obscured the bones, so that digital examination was of little use. I made an effort under chloroform to bring the bones into position, but to no purpose. After a few days rest to the parts I again placed the patient under an anaesthetic, and opening the arm by Langenbeck's posterior incision over the olecranon, I gained free entrance to the joint by sawing through the base of the olecranon. Forceful flexion freed the parts very much, and enabled me to elevate the periosteum of the condyles of the humerus, and with it the origins of the flexors and extensors. This, and section of many dense bands around the bones were necessary to allow me to restore the bones to their proper place, and even then the restoration was not an easy matter, great force being rendered necessary by the amount of fibroid material fixing the bones in the abnormal position.

I now brought the olecranon down with the forceps, above depicted freeing it somewhat by section of the triceps tendon, and much adventitious tissue which fixed it to the olecranon fossa.

A wire suture, as in the last case, secured the olecranon to the shaft of the ulna, and I was able to flex the arm at once to the position shown in Plate IV. I had already prepared the splint here shown (Fig. 4), which I now applied. From the first he had no pain or uneasiness, and the accompanying Chart shows

that notwithstanding prolonged manipulation the temperature was favourable.

Movements of the fingers were commenced on the fourth day, the wrist on the eighth, and a few days later supination and pronation were carried out. The wound was soundly healed on

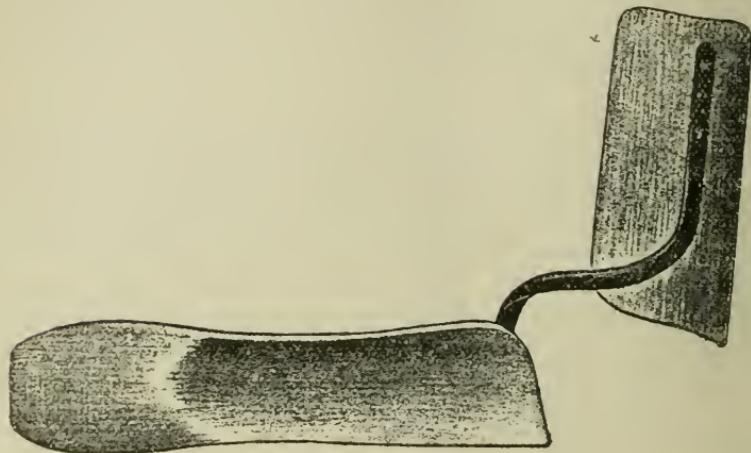


Fig. 4.

the eighth day, when the silkworm gut sutures were removed ; on the fourteenth day extension of the forearm was carried out, but flexion beyond a right angle was not allowed for fear of separating the fragments ; on the twentieth day the accompanying photograph (Plate IV.) was taken, showing the parts in accurate position.

Now, the joint was encased in light plaster of Paris, in position of semi-flexion, and the patient allowed home. He had movements of supination, and pronation in perfection, and all swelling had disappeared from the neighbourhood of the replaced bones.

On Friday, March 11, after having again photographed the bones in this case, I flexed and extended the arm, the range of motion being very free indeed. The bones are, as seen in the accompanying picture, in perfect position and outline, and union by bone is complete (see Plate V.).

Thus exactly two months from the date of operation we find sound bony union has occurred. I think a study of X-ray pictures will prove of great value in judging of the

PLATE IV.—MR. M'ARDLE ON JOINT INJURIES.



CASE II.—Six weeks after section and suture, showing line of bone section.



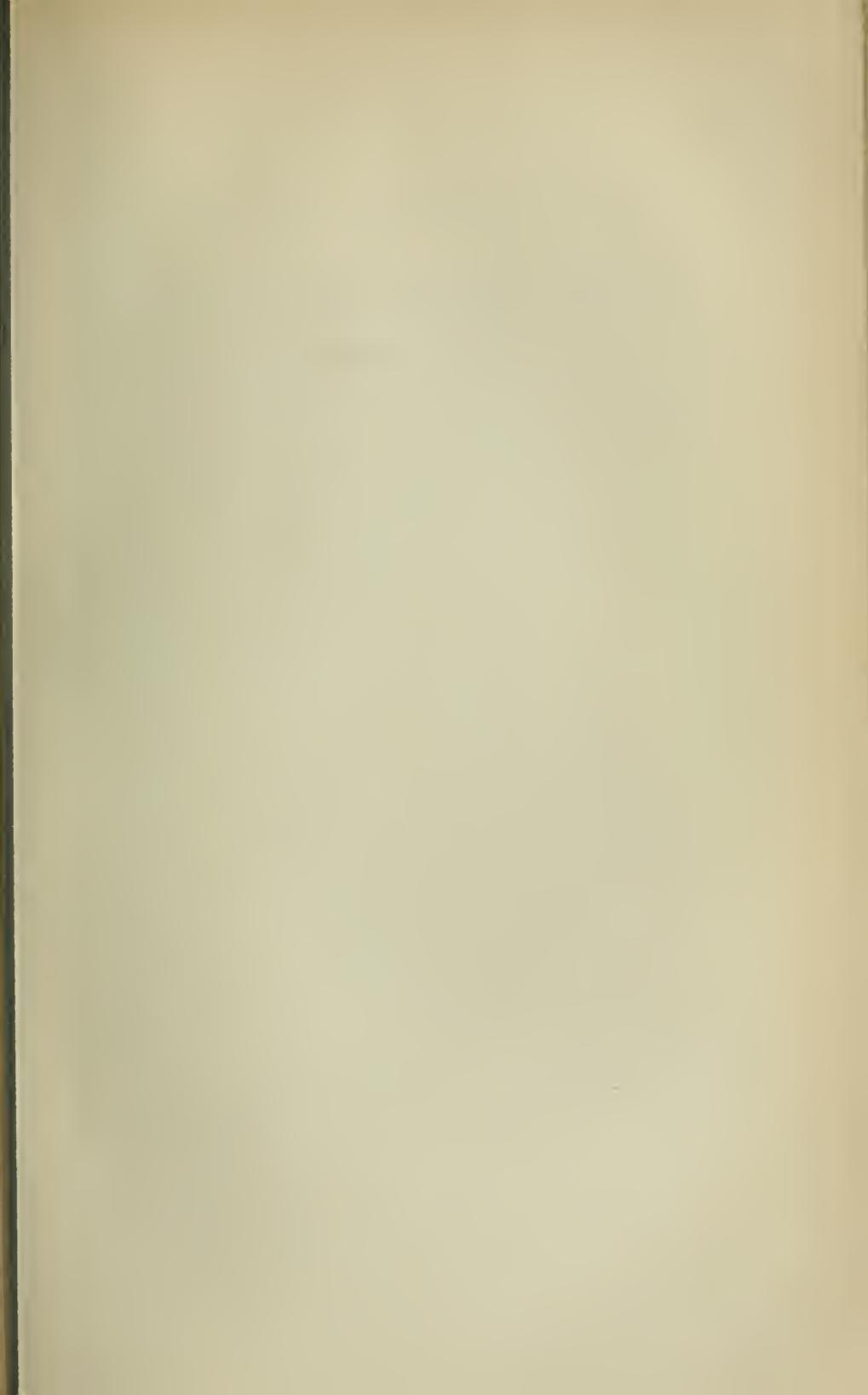


PLATE V.—MR. M'ARDLE ON JOINT INJURIES.



CASE II.—Eight weeks after section and suture, showing complete union.

proper time for allowing movement after operations on bone. It will be seen by the photographs here shown how different the course of repair is in the child and in the adult—only a faint line of bony union appears in the adult bone after six weeks, while in the child union is quite complete in the eighth week.

These are uncomplicated cases, and so I have selected them for an introduction to this study of a class of joint injuries of very frequent occurrence. Plate V. represents the condition of Case II. eight weeks after operation.

ART. XVII.—*The Housing of the Poor in Dublin.*^a By HENRY C. TWEEDY, M.D., Univ. Dub.; F.R.C.P.I.; Diplomate in State Medicine, University of Dublin; Physician to Steevens' Hospital; President of the Section of State Medicine in the Royal Academy of Medicine in Ireland.

In welcoming you to the opening meeting for 1898 of the State Medicine Section of the Royal Academy of Medicine, it is my first and most grateful duty to offer to you my very warm thanks for the honour you have done me in appointing me your President, and to express a hope that during my term of office the Section may continue to show the same abundant signs of vitality that have characterised its meetings during the reign of my predecessors in this chair, and which you also see amply evidenced in the programme now set before you.

Not, indeed, that the President can claim any great credit for the exuberant vitality to which I have alluded. It is to another officer the need of praise for this is justly due—an officer who, though he shines not with an ephemeral lustre from a Presidential chair, is yet the main source of light and vital energy to a Section—I allude to the Secretary; and it is with pride and pleasure that I would remind you, were it not superfluous to do so, that it is to the untiring exertions of Dr. Ninian Falkiner, and to the support he has

^a The Presidential Address delivered before the Section of State Medicine in the Royal Academy of Medicine in Ireland, on Friday, February 18, 1898.

received from his colleagues, that this success may be almost entirely attributed.

In this Royal Academy of Medicine the State Medicine Section exercises an important and unique function. While in the other Sections the subjects under discussion must be dealt with from a strictly technical standpoint, this Section of ours has, in many respects, a still more peculiar and responsible rôle to play, in that it deals largely with questions having a wider scope than those which would claim merely the professional interest of the physician or the surgeon. Here we are brought more into touch with the needs of the community at large, and it has often seemed to me that it would be highly desirable—could certain manifest difficulties be got over—if, instead of merely embalming the results of our labours, and then entombing them in the mausoleum of the Transactions, there to lie till disinterred by some curious student of the antique, the meetings of this Section might be made more popular in their character, and that persons interested in questions affecting Public Health might be introduced to assist in our deliberations, and learn with those who have had special opportunities for studying such questions the blots that are to be found in our sanitary laws, and the means that might be suggested for removing them.

It is to the consideration of one of these blots that I would ask your assistance this evening—viz., the difficult, nay, almost insoluble, problem of the Housing of the Poor.

It was said by the greatest Philanthropist the world ever saw—"Ye have the poor always with you," and it is not probable that in Dublin, at all events, we are likely to forget this fact; nay, the very knowledge of it has created channels through which relief in various forms reaches the poor. Nowhere in the world, perhaps, are they better cared for in the way of hospitals and medical advice, and there are also numerous charitable organisations for supplying them with clothing, food, and fuel; but when we come to look at their homes it is then that the gaunt spectre of misery and discomfort faces us in all its hideousness.

Compare this state of things with the lot of the average artisan, earning steady wages, and having constant employ-

ment; the conditions under which he lives contrast in every way favourably with those of his poorer neighbours.

The Dublin Artisans' Dwellings Co. and numerous other building societies have, of late years, supplied a great public want by constructing roomy, well-ventilated, healthy tenements, provided with every modern sanitary requisite, and with a weekly rental of from 4s. upwards; but there is a class—a very large class—who would find it utterly impossible to pay even the moderate rent of 4s. per week. On examining the census returns for Dublin in 1891, we find that out of a population of 349,394 there are under the classification of hawkers, porters, labourers, the large number of 83,472 persons, or about one-fourth of the entire population.

Let any reasonable person ask himself the question—how could a rent of even 4s. a week be paid out of the precarious earnings of such as these?

But what becomes of them? Where do they live?

Through the kindness of Sir Charles Cameron I can lay before you a few interesting figures which throw some light on this part of the subject.

He informs me that for the purpose of inspecting tenement houses the city is sub-divided into 16 districts, each district having a distinct officer.

That he had estimated that there were about 54,000 families in Dublin inhabiting 24,000 houses. But how were these distributed as regards numbers—16,000 houses out of the 24,000 were inhabited by 22,000 families, and the remaining 8,000 houses, containing about 48,000 rooms, were inhabited by 32,000 families, allowing only about one and a half rooms to each family.

This state of overcrowding is bad enough, but worse remains behind. Most of the houses used as tenement houses in Dublin are old, varying from 100 to 200 years. They were formerly inhabited by the wealthier class, but have gradually fallen into decay more or less; and having been built at a time when sanitary science was not even thought of, are in many instances utterly unfit for human habitation.

Now, independently of the manifestly injurious effect produced upon the health of our poorer fellow-citizens by this mingled condition of squalor and overcrowding, the moral

deterioration that accompanies it is even more to be deplored. The social reformer, preaching cleanliness and temperance, is here met with a practically insurmountable obstacle. What inducements have these wretched people to be clean or temperate? The first is rendered almost impossible by the nature of their environments, and if they seek in the glare of the publichouse some of the brightness they find not in their homes, and endeavour to dull their senses into a temporary oblivion of their wretchedness, is it for us to cast a stone at them? More especially when they are paying for all this squalor, more in proportion than the wealthy inhabitants of the squares are paying for their luxurious homes. Anyone taking the trouble to walk through the slums of this city can verify these facts for himself. He will find countless instances of exorbitant rents being paid for rooms, in many cases, unfit to be habitations for swine, while the proprietors of these miserable tenements are reaping a rich harvest from the scanty earnings of these miserably poor people.

It is not for a merely idle purpose I venture to inflict upon you a thrice-told tale like this. No; we are face to face with a great social problem, which not only remains yet unsolved, but to solve which only too little effort has been made up to the present.

Even for the miserable accommodation of which we have been talking the demand is greater than the supply, and nothing remains but that last refuge, the workhouse, one of the most glaringly demoralising institutions ever devised or made use of by a civilised community.

With the exception of the inmates of the union hospitals and the infirm wards—the two redeeming features of the system—here one may see crowds of fairly strong men and women doing nothing, or almost nothing. They cannot be employed at remunerative labour, as the cry of underselling would at once be raised, and there they drift along, in an unhealthy moral atmosphere, till they get tired of the place and go out to seek a precarious subsistence elsewhere, their places being rapidly filled by a never-failing stream of miserable successors.

It is astonishing to think how little has been done to remedy this crying evil.

The Corporation of Dublin have, no doubt, made some praiseworthy efforts in this direction. They have built a few tenements of the kind that are needed—that is to say, with rents from 2s. per week downwards—any higher rent than this being beyond the reach of the classes of which we are speaking. The Corporation have in all 83 tenements of this class, as I am informed by Sir Charles Cameron—46 at 2s. a week, 14 at 1s. 9d., and 23 at 1s. 6d.

They are also clearing away in various districts blocks which no doubt ought to come down, but it has been complained to me, over and over again, that the unfortunate people who are thus turned out of their homes, wretched though they were, have literally nowhere to go save to the workhouse.

With, doubtless, the best intentions in the world, the Corporation of Dublin have not a free hand in this matter. Dwellings of the description required, and containing tenements which could be let at rents varying from 2s. downwards, could not be constructed save at a loss, and the financial powers of the body are limited. They have not sufficient borrowing powers, and yet it would seem to be very clearly the duty of the municipality to provide accommodation of this type, and by doing so, as opportunity offered, the plethora in the unions might be relieved, and some much needed economy effected in that direction, the results of which might go towards a building or improvement fund.

But, independently of constructing new blocks of buildings, there is another way in which suitable accommodation could be provided, and that at comparatively moderate cost.

The tide of fashion in Dublin, as in many large cities, has of late years flowed steadily in the direction of the suburbs, which one sees increasing daily in size and importance. In consequence of this exodus, there are numerous houses in streets formerly fashionable which might be purchased or rented at figures comparatively low. These, however, though antiquated in construction, are well and strongly built, and by suitable internal alterations could readily be modified into healthy and commodious tenements.

And now as regards the financial question may I offer one hint or suggestion in conclusion.

Is there any legitimate way in which the Corporation of Dublin could so increase its finances as to be able to effect these most desirable improvements, without imposing any additional burden on the ratepayers? I believe that there is, and that, too, without any sweeping legislative changes, but merely by using machinery already in existence, though allowed to rust from want of use.

I allude to the periodical revision of the valuation of house property, and, as a consequence, the insuring of a less glaring disproportion between the valuation and the rent than exists in many cases at present. This is neither the time nor the place for going into this subject in detail, but I will merely ask your forbearance while I offer you two illustrations.

In the principal business streets of Dublin there are numerous houses in which it is seen that the lower story is a shop and the upper stories are let as offices for which a high rent is usually paid; now if you look at the valuation of houses such as these, it will frequently be found that the gross rent paid for the house, including the shop and offices, is far in excess of the valuation.

Again, in the case of the tenement houses, of which we have just been speaking, here the discrepancy is even more remarkable, as in many cases the rent is four or five times the amount of the valuation, and even more.

Were the law then put into force which requires a periodical revision of the valuation of the entire city, and were that valuation caused to bear a fixed proportion to the rent in all cases, the financial result would be very startling; and I am convinced that in this way, without putting additional pressure upon anybody, the municipal revenues would be sufficiently augmented to admit of the carrying out a much-needed reform, and of raising, in the improved moral and social well-being of our poorer brethren, a lasting monument of the enterprise and philanthropy of our city.

The Royal Academy of Medicine is not an executive body, nor has it any power to carry out measures which it believes to be urgently required, but, as I said at first, this Public Health Section has a most important and peculiar function

to discharge—namely, the moulding of public opinion and the guiding of public action in the direction of much-needed reforms; but our efforts are cramped, our horizon is limited. Many of us here are brought into daily contact with the poor, and have learned something of their wants, their needs, their difficulties, in the only way the lesson can be learned—viz., by personal contact with them.

Others, again, from the special nature of their studies, are eminently qualified to advise and to direct, and to guide into proper channels philanthropic efforts otherwise liable to be wasted.

But it is of little avail for a small body of professional men to discuss *in camerâ*—for it amounts to that—reforms which they are powerless to carry out; and so it is that I venture to hope that the day may not be distant when the Royal Academy of Medicine may in its wisdom decide to open its portals wider, at least as far as its Public Health Section is concerned, and, by inviting the co-operation of those interested in public and social reforms, greatly to enlarge its sphere of usefulness, and render itself a still more important factor among the agencies which are at work for the relief of misery and suffering.

ART. XVIII.—*Clinical Report of the Rotunda Lying-in Hospital for Three Years, from Oct. 1, 1893, to Oct. 31, 1896.* By WILLIAM J. SMYLY, M.D., F.R.C.P.I.; Master, Rotunda Lying-in Hospital; H. WILSON, L.R.C.S.I.; and HENRY JELLETT, M.D., M.Ch., Assistants.

DURING the three years

4,006	women were confined in the Hospital,
6,273	" " at their own homes.

Total, 10,279

Of the 4,006 patients delivered in the Hospital 14 died, or 0·374 per cent.

TABLE I., showing nature of Cases in Rotunda Lying-in Hospital.

—	1893-94	1894-95	1895-96	Total	—
Total number of cases	1,316	1,267	1,423	4,006	
Primiparae	487	430	503	1,420	1 in 2·8
Abortions	50	40	44	134	1 in 29·8
Hyperemesis	1	1	1	3	1 in 1,335
Hydramnios	2	3	2	7	1 in 572
Myxoma chorii	1	1	—	2	1 in 2,003
Face to pubes	3	1	17	21	1 in 191
Face	4	6	2	12	1 in 334
Brow	1	2	1	4	1 in 1001·5
Breech and lower extremities	23	49	53	125	1 in 32
Shoulder and upper extremities	7	3	4	14	1 in 286
Twins	14	12	19	45	1 in 89
Triplets	—	—	1	1	1 in 4,006
Prolapse of funis	8	4	7	19	1 in 211
Placenta praevia	8	14	9	31	1 in 129·5
Accidental haemorrhage	11	5	4	20	1 in 200
Post-partum do.	14	18	17	49	1 in 82
Prolapse of cervix	1	—	—	1	1 in 4,006
Rupture of uterus	—	1	—	1	1 in 4,006
Labial thrombus	—	—	2	2	1 in 2,003
Retained placenta	10	10	15	35	1 in 114·5
Ovarian tumour	—	—	1	1	1 in 4,006
Myoma uteri	1	5	2	8	1 in 500
Pelvic deformity	7	7	7	21	1 in 191
Induction of labour	3	7	3	13	1 in 308
Turning	14	16	12	42	1 in 95
Forceps	41	32	44	117	1 in 34
Perforation	—	1	2	3	1 in 1,335
Cæsarean section	1	—	—	1	1 in 4,006
Panhysterectomy	1	—	—	1	1 in 4,006
Symphiotomy	—	—	1	1	1 in 4,006
Eclampsia	4	1	3	8	1 in 500
Insanity	—	—	3	3	1 in 1,335
Deaths	7	6	1	14	1 in 286
Morbidity	59	69	44	172	1 in 23
Children—					
Spina bifida	1	—	1	2	1 in 2,003
Anencephalous	—	2	3	5	1 in 801
Hydrocephalous	2	—	2	4	1 in 1001·5

PROLAPSE OF FUNIS.

There were 20 cases of prolapse of the funis. Two were complicated by placenta praevia, and one was the second of twins: eight children were stillborn, in three of whom the cord was pulseless when discovered, and one of these children was mace-rated. All the mothers recovered.

NAME	Age	Para	Date	Pres.	M.	C.	
1. M. B.	29	4	January 9, 1894	V.	R.	A.	External version ; extraction.
2. B. S.	25	5	Feb. 28,	V.	R.	A.	Combined version.
3. M. C.	30	2	March 12,	V.	R.	D.	Forceps.
4. M. B.	36	3	May 13,	Breech	R.	D.	Placenta praevia ; foot brought down.
5. M. D.	19	1	July 20,	Foot	R.	A.	Extraction.
6. B. R.	29	3	Aug. 5.	V.	R.	A.	Reposition.
7. M. B.	23	5	Sept. 9,	Breech	R.	D.	Cord pulseless ; nothing done.
8. L. C.	23	1	Sept. 24,	Breech	R.	D.	Twins: 1 vert. alive : 2nd, breech, cord pulseless.
9. A. S.	39	1	Jan. 29, 1895	V.	R.	A.	Combined version.
10. M.A.F.	40	3	March 27.	Oblique	R.	A.	Internal version.
11. C. J.	33	9	March 29,	V.	R.	D.	Do. do.
12. A. S.	36	2	May 20,	Oblique	R.	A.	Do. do.
13. M.A.B.	35	10	Dec. 28,	Breech	R.	A.	Extraction.
14. R. B.	22	2	Jan. 3, 1896	V.	R.	A.	Nothing; labour rapid.
15. J. O'D.	34	5	Feb. 14.	V.	R.	D.	Combined version.
16. J. D.	33	3	April 28,	V.	R.	D.	Cord pulseless ; nothing done.
17. K. M.	27	4	July 30.	V.	R.	A.	Nothing done; rapid delivery.
18. M. B.	35	5	July 9,	V.	R.	A.	Syphphysiotomy ; version.
19. K. F.	22	1	Aug. 20.	V.	R.	D.	Cord pulseless ; nothing done.
20. M. D.	30	5	Oct. 19,	Foot	R.	A.	Slight accidental hæmorrh. memb. ruptured. cord prolapsed; extraction.

ABORTIONS.

There were 134 abortions, with 2 deaths. The preventive treatment of abortion was limited to rest in bed,

hydrastis canadensis for haemorrhage, and opium for pain; no alteration was made in their beds or coverings. We did not give them cold food, nor apply cold to the vulva or hypogastrium, nor was ergot administered. We did not interfere because abortion appeared inevitable, but, unless there were special indications, the case was left to nature. When haemorrhage was severe we found, with one exception, that the os was sufficiently dilated to remove the ovum. The plug was never employed where any portion of the ovum had escaped; in such cases we followed the same rule as in delivery at term—*i.e.*, we waited half an hour, and if the remainder were not expelled spontaneously we removed it. Thus 55 cases terminated without assistance; in 1 case the vagina was plugged in the hospital, because though haemorrhage was severe the os would not admit a finger; and 2 were admitted with vaginal tampons. The uterus was plugged after curetting in 2 cases—once for haemorrhage and once for putrefaction. In 5 cases the hot douche only was employed; in 8 compression of the uterus between the fingers of one hand in the vagina and those of the other upon the hypogastrium sufficed; in 11 the finger was introduced to detach portions of the ovum; and 50 were curetted.

E. H., aged twenty-seven, 5-para; admitted Oct. 1, 1894; six months pregnant. Patient, who had been sent up from the country, had suffered for a whole month from severe and repeated haemorrhages, and had been repeatedly plugged. On admission she was in a state of profound anaemia. A plug was removed from the vagina, which was then scrubbed thoroughly with creolin lotion, and upon examination the os was found closed. During the next four days there was no haemorrhage, and every effort was made to improve her condition. On the fifth day haemorrhage recommenced, and two laminaria tents were introduced into the cervix, and the vagina was plugged. During the night her temperature rose to 103·5°, but in the morning had fallen to 101·2°. She then complained of labour pains, but she became exhausted and died undelivered.

A. C., 4½ months pregnant; incomplete abortion; admitted with septic fever, of which she died on the twentieth day. Her case is reported under that heading.

Another case had been plugged outside. On admission her tem-

perature was 101°, and pulse 120. The tampon was immediately removed, the vagina and uterus thoroughly douched out, and the latter curetted. The next evening her temperature rose to 103·4°, but fell the following morning, and though it continued somewhat irregular it never rose again above 101°. She left the hospital against our advice on the eighth day.

HYPEREMESIS.

There were 3 cases of uncontrollable vomiting, all of which terminated fatally.

K. K., aged thirty-seven, 7-para, admitted from extern maternity, August 15, 1894. Patient was very emaciated, and exceedingly weak from constant and uncontrollable vomiting. It was determined to induce labour as quickly as possible, and two bougies were inserted between the membranes and uterine wall. Pains set in in six hours, the breech presenting. As soon as the os was sufficiently dilated a foot was brought down, and a premature child weighing 4½ lbs. extracted alive. After delivery vomiting continued, and in spite of nutrient enemata she gradually grew weaker, her temperature steadily falling from 97° at the time of the child's birth to 95° on the fourth day, when she died. The *post-mortem* showed some inflammation of the stomach, but all other organs healthy.

C. H., aged thirty, 3-para, admitted June 24, 1895, from Steevens' Hospital in a very emaciated condition, with history of constant vomiting for past six weeks. Urine highly albuminous, contained tube casts. The vomiting ceased on July 1, but she gradually became weaker. Labour set in on the 3rd, and she was delivered in a quarter of an hour, but died eighteen hours after. *Autopsy*.—Old pleuritic adhesions; dilated stomach; large white kidneys.

M. B., aged twenty-nine, 7-para, seven months pregnant, admitted October 11, 1895, with advanced kidney disease. History of constant vomiting for past five months; patient deeply jaundiced, liver enlarged, uræmic breath, no œdema, urine dark-coloured, highly albuminous, contained bile pigment. October 12.—Uræmic convulsions, gradually became comatose, and died undelivered the following morning. *Autopsy*.—Large fatty liver; large white kidneys.

HYDRAMNIOS.

There were 7 cases of hydramnios, in 2 of which the children were anencephalic, 1 had spina bifida, and a fourth was oedematous. One patient was so enormously distended that she suffered from intense dyspnoea, which was immediately relieved by the escape of the waters.

ABNORMAL PRESENTATIONS.

Face to Pubes.—Twenty-one cases were reported, but as it was not necessary to report this abnormality to the medical officers the record is not reliable.

Face.—Twelve cases.

Brow.—Four cases. Two terminated as such, one changed into a face, and the fourth was converted into a vertex. The head being freely movable above the brim, the hand was introduced and the occiput brought down. Labour was completed by the natural efforts.

Breech and Lower Extremities presented 125 times. Twice a leg was brought down to hasten delivery: 15 times the arms were extended above the head and had to be brought down. The posterior arm was always delivered first, and in most cases the child was rotated so as to turn the other arm into the hollow of the sacrum before it was delivered. When the delivery of the head required assistance it was generally accomplished by the Prag, Smellie's or Martin's method, most frequently by a combination of the two latter: once only were forceps applied to the after-coming head, but without success, and the child having died it was perforated. Forty-one children were stillborn, of which 12 were macerated, and 4 died in the hospital.

Shoulder and Upper Extremities.—Fourteen cases. All the mothers and 9 of the children survived. In 3 external, in 6 internal, and in 3 bi-polar version was performed; 1 was decapitated, and 1, a small and macerated foetus, was expelled spontaneously.

M. C., aged thirty-seven, 2-para, admitted January 16, 1894. Had been twenty hours in strong labour before admission. The child was lying obliquely with its head in the left iliac fossa, the right shoulder impacted in the pelvis, and the arm prolapsed and swollen. There was no fetal heart, and the contraction ring could

be easily felt above the foetal head. The child was decapitated with Braun's hook. The mother made a good recovery.

TWINS.

There were 45 twin births. The majority required no assistance. In one case the hand and non-pulsating cord prolapsed, they were replaced. The head of the other child came down, and labour terminated by the natural efforts. In another a hand and foot presented, but when the membranes ruptured a head and arm came down, and the labour terminated without difficulty. In one case forceps was applied, and in one in which there was also placenta prævia version was performed.

Presentations.

Both vertex	-	-	-	16
Vertex and breech	-	-	-	15
Breech and vertex	-	-	-	10
Face and breech	-	-	-	1
Vertex and face	-	-	-	1
Both breech	-	-	-	2
				—
				45

Sexes of Children.

Both male	-	-	-	16
,, female	-	-	-	20
Male and female	-	-	-	9
				—
				45

TRIPLETS.—One case.

PLACENTA PRÆVIA.

There were 31 cases of placenta prævia. Ten children were born alive, and 22 dead. All the mothers recovered. In 4 cases no treatment was required; in 5 rupture of the membranes was sufficient; in 20 a foot was brought down and delivery left to the natural efforts. In order to bring down the foot in 18 of these cases, version was necessary—in 2 external version; in 2 internal; and in 14 bi-polar version was performed. One case was delivered with forceps.

NAME	Variety	Result to Child	Presentation	Treatment
E. O. T.	Marginal	D.	Vertex	Membranes rupt.
M. K.	Do.	A.	Oblique	Internal version
E. W.	Lateral	A.	Vertex	Bi-polar do.
M. C.	Marginal	A.	Do.	Forceps
H. C.	Lateral	D. D.	Both vertex	Membranes rupt.
L. M.	Marginal	D.	Do.	Do. do.
M. K.	Central	D.	Do.	Bi-polar version
B. B.	Marginal	A.	Do.	Nil
L. S.	Marginal	A.	Do.	Nil
M. B.	Lateral	D.	Do.	Bi-polar version
M. H.	Marginal	A.	Do.	Membranes rupt.
E. R.	Do.	D.	Do.	Bi-polar version
C. R.	Do.	D.	Breech	Nil
J. D.	Lateral	D.	Vertex	Bi-polar version
J. C.	Do.	D.	Do.	Internal do.
B. McK.	Do.	D.	Do.	External do.
M. M.	Marginal	D.	Do.	Membranes rupt.
J. S.	Central	A.	Do.	Bi-polar version
M. O'B.	Do.	D.	Breech	Foot brought down
E. F.	Lateral	A.	Vertex	External version
M. B.	Do.	D.	Do.	Bi-polar do.
A. F.	Do.	D.	Do.	Do. do.
E. P.	Central	D.	Vertex	Bi-polar version
M. B.	Do.	D.	Foot	Foot brought down
L. W.	Lateral	A.	Transverse	Bi-polar version
K. H.	Marginal	D.	Vertex	Do. do.
W. O'B.	Central	D.	Do.	Do. do.
K. P.	Do.	D.	Do.	Nil
M. II.	Lateral	A.	Do.	Bi-polar version
G. O'D.	Marginal	D.	Do.	Do. do.

E. W., aged thirty, 4-para, admitted Jan. 29, 1894. She had had haemorrhage for five days before admission, and on the 28th it was very profuse. The medical practitioner who was called in plugged the vagina and sent her into hospital. On admission she was very anaemic, pulse 130, temperature 101°. She had also constant vomiting, so that she could retain no food. Her condition was so critical that in spite of her high temperature we did not consider it advisable to remove the plug immediately, but directed our efforts to stopping the sickness and restoring her vitality. After two hours the plug was removed, the vagina disinfected, bi-polar version performed, and a foot brought down. Labour did not set in for nineteen hours. She was then rapidly delivered of a child in a state of pallid asphyxia, which was brought round by Schultze's method, and left the hospital with its mother.

M. C., aged thirty, 2-para, admitted March 2, 1894. Slight hemorrhage from marginal placenta praevia, which ceased when the membranes were ruptured; cord prolapsed and ceased pulsating, child rapidly delivered with forceps; heart pulsating, but all efforts failed to resuscitate it.

H. C., aged thirty-one, 3-para, admitted June 23, 1894. Was sent into hospital by a doctor who had separated the placenta from the lower zone of the uterus by Barnes' method, but had not ruptured the membranes. On admission the haemorrhage was profuse; pulse, 120; T. 99°; os somewhat larger than a shilling. The vagina having been douched with hot creolin solution, the membranes were ruptured. Haemorrhage immediately ceased, and she was left to deliver herself. The child was dead.

There was no maternal death.

ACCIDENTAL HÆMORRHAGE.

There were 20 cases of accidental haemorrhage, 8 of which were severe. In 12 cases nothing was required to check the haemorrhage beyond a hot douche and rupture of the membranes. In 4 the vagina was plugged, in 3 version was performed, and 1 was delivered with forceps.

A. E., aged forty, admitted Nov. 2, 1894. Patient was seven months pregnant, and had suffered from severe flooding before admission. There were no labour pains, and the os would only admit the tip of one finger. The vagina having been douched with hot creolin solution was plugged with gauze and moist cotton-wool. When the plug was removed, 24 hours later, the os was

found the size of a crown piece, and during the examination it was retracted beyond the reach of the finger. The membranes were ruptured, and in a few minutes a dead child was expelled. The woman declared that she was unconscious of pain during delivery. She made a good recovery.

E. S., aged twenty-nine, 5-para, admitted Dec. 6, 1894, with severe flooding; the os was undilated, and there were no labour pains. The vagina was douched and plugged as in the former case. Pains set in in about four hours. The plug was removed and the membranes ruptured. A dead child was shortly afterwards expelled.

W. D., aged twenty-five, 4-para, admitted 18th March, 1895. In this case the haemorrhage commenced after rupture of the membranes. Labour pains were strong, but the flooding was very profuse. She became very anaemic, with a pulse of 122. The head being well in the cavity of the pelvis and the os nearly dilated, the forceps was applied, and a dead child, weighing 9 lbs., extracted. An examination of the after-birth showed that the placenta had been situated in the upper zone of the uterus.

M. S., aged thirty, 2-para, admitted Aug. 14, 1895. Had had severe haemorrhage before admission, and internal version had been attempted outside; the os was about the size of half-a-crown, and a foot was in the vagina, but the head was still in the brim. Version was completed by pushing up the head, and strong pains setting in a living child was born in two and a half hours.

(To be continued.)

RÖNTGEN-RAYS FOR ECHINOCOCCUS.

PROFESSOR POSNER presented at the last meeting of the Berlin Medical Society a patient who, for some time before consulting a doctor last November, had been passing at intervals numbers of echinococcus-cysts in his urine. In the right hypochondriac region there was a tumour extending well down to the crest of the ilium. This gave the characteristic fluctuation of echinococcus growths, and seemed almost surely to be connected with the right kidney. A Roentgen radiogram, however, showed that the parasites really were in the liver, and operation confirmed this diagnosis. Instead of an extraperitoneal kidney operation, a cæliotomy was done and proved to be indicated by the condition.—*The Philadelphia Medical Journal*, March 12, 1898.

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Soda, Seltzer, Potass and Lithia Waters, Lemonade, &c., &c.,
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PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Supplement to the Fifty-fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England.
Part I.—1895. Ditto, Part II.—1897. Presented to both Houses of Parliament.

(Continued from p. 201.)

[SECOND NOTICE.]

In our first notice of these valuable Reports we referred generally to their purport, and, so far as our space permitted, dealt with the subjects of general death-rates and life-tables as treated of by Dr. Tatham. We shall now consider the other matters which Dr. Tatham deals with in his "Letters to the Registrar-General." In his first letter Dr. Tatham considers the subject of the causes of death. A table is given showing the changes in classification which were introduced in the year 1881 in conformity with the revised nomenclature of disease published by the Royal College of Physicians of London. These changes had been already referred to and explained in previous reports.

Dr. Tatham thus refers to the more important of these changes:—

"(1.) Up to the end of 1880 the deaths ascribed to Rötheln were referred in the official Tables to Measles; the former disease is now classified under the new heading 'Rubella,' or Epidemic Rose Rash. (2.) The deaths from enteric fever were formerly augmented by the inclusion of the deaths referred by certificate to infantile remittent fever, and also of the deaths under 5 years of age referred to remittent fever. The deaths from these causes are now separated from enteric fever, and included under the heading 'Remittent Fever.' (3.) The deaths from 'brain fever' used to be classed with those from simple continued fever; they are now otherwise dealt with, after special inquiry. (4.) Fibroid tumour was formerly included amongst cancerous affections; this is no longer the practice. (5.) Deaths from chronic hydrocephalus

were formerly referred to 'Tubercular Meningitis ;' but under the new method of classification they are placed among diseases of the nervous system. (6.) Under the old method deaths ascribed to 'Hæmorrhage,' without further particulars, were classed to diseases of the circulatory system. Such cases are now made the subject of special inquiry, and whenever the actual cause of the hæmorrhage cannot be ascertained they are relegated to a separate heading 'Hæmorrhage' in the group of indefinite causes."

The subject of faulty death certificates is then referred to, and the measures taken by Dr. Tatham and his predecessor to remedy these faults by confidential inquiry through the certifying medical attendant. Dr. Tatham says :—

"The important character of the work achieved by this system of inquiry will be appreciated when the fact is realised that several thousand deaths have by its aid been rescued from amongst the ill-defined group of ailments, and added to definite and serviceable headings in the statistical records of this Office. Since the year 1885, 1,942 deaths have been added to diseases of the heart and circulatory system, 1,548 to malignant diseases, 1,458 to puerperal fever and other disorders of parturition, 818 to diseases of the urinary system, 458 to tubercular diseases, 248 to venereal diseases, 271 to uterine diseases, and 260 to enteric fever."

Dr. Tatham adds a table of "Balance of Gains and Loss in the Mortality from Specified Causes," the net result of the confidential inquiry system being that the authorities at Somerset House have been able to classify annually over 2,000 causes of death in their proper places, which otherwise must have gone into either the residuum of uncertain causes or been actually classified under the wrong headings.

Dr. Tatham proceeds next to analyse the causes of death in the case of zymotic diseases ; his report is, on the whole, satisfactory. He says :—

"Taking together the eight causes of death which are known as the 'Common Infectious Diseases,' we find that their average mortality in 1881-90 for the most part fell considerably, as compared with the corresponding mortality in 1871-80, the only exceptions being measles and diphtheria, both of which diseases showed an increase."

This statement shows that Preventive Medicine must have achieved some triumphs during the decade.

"According to Table 5 it appears that the deaths directly ascribed to small-pox in the recent decennium were in the proportion of 45 per million persons living at all ages. The mortality from small-pox, which, in 1871-80, had shown an increase equal to 74 per million upon the mean rate of the preceding decennium, exhibited a striking decrease in the decennium ending with 1890, the fall being equal to 189 per million living, or 81 per cent. of the small-pox mortality in 1871-80. The decrease was common to all ages and to both sexes, although in varying degrees. Among children aged under five years the decline was equal to 84 per cent., and from 5-10 years to 88 per cent. At all other ages the decline, though less considerable, was yet strongly marked."

"With reference to the condition as to vaccination of the victims to small-pox, unfortunately the medical certificates furnish but meagre information. Of the 12,280 persons whose deaths were returned as due to that disease in England and Wales during the decennium under notice, 2,145 were stated to have been vaccinated, and 3,370 to have been unvaccinated, whilst with respect to the remaining 6,765, or more than half, no information was obtainable."

In a note Dr. Tatham states that this complaint, with respect to defective information regarding the condition as to vaccination of persons dead from small-pox, does not apply to deaths in hospitals, in which cases the required information is "much more frequently obtained." We are quite aware of the difficulty even in hospitals of obtaining information as to the previous vaccination of persons who are admitted suffering from small-pox, but when we find this information wanting in "more than half" of the recorded cases, it seems to show a serious absence of accurate inquiry among the medical attendants of these cases. Surely the certifying medical attendant would give this information if he possessed it! It is extremely satisfactory to find such a marked diminution in mortality from this disease, which, we think, may be altogether attributed to the increased efficiency in vaccination. Unfortunately we have not such a favourable account to give of *measles*, to which Dr. Tatham thus refers:—

"The average annual mortality from measles has not fluctuated greatly in the course of the last thirty years. In the decennium

last ended the rate among persons without distinction of sex or of age was 440 per million living, the same rate as that which had obtained in 1861-70 also; the rate in the intermediate decennium having been 378. As measles is mainly fatal to young children, it will be advisable, for purposes of comparison, to examine the mortality at the earlier ages. In 1881-90 the death-rate among children under five years old was 3,131 per million living at that age, against 2,568 in 1871-80, and 2,998 in the preceding decennium.^a According to these figures, therefore, it would appear that the mortality from measles among children was greater in the recent decennium than it had been in the previous ten years: and the table at foot shows that the increase of mortality extended to each of the years in the first quinquennium of life; it also shows that the disease is constantly more fatal in the second than in the first year of age. In each of these decennia the male rate at all ages was considerably higher than the female, but at ages above five years the reverse was the case almost uniformly."

This is precisely what might be expected, and measles will still continue to maintain its fatal sway over the little ones so long as ignorant and stupid parents continue to believe measles to be a mere trifle, and the phrase "only the measles among the children" continues to be a current phrase among all classes, and seems to be accepted by many sanitary authorities as a reason for not placing the disease among "dangerous infectious diseases," and not requiring its notification.

We are glad to find that during the last three decennia the annual mortality from *scarlet fever* "has fallen steadily and very considerably; the mean death-rates in the decennia ending respectively with 1870, 1880, and 1890, having been 972, 716, and 334 per million of the population at all ages.

^a *Measles.*—Death-rate per million living at each year of age under five:—

Decennia	Under 1 year	1—	2—	3—	4—	Total under 5 years
1861-70	2,737	6,243	3,236	1,730	968	2,298
1871-80	2,767	5,411	2,465	1,389	778	2,568
1881-90	3,365	6,673	2,916	1,684	1,031	3,131

It is difficult to ascertain whether this rapid decline in the registered mortality depends upon a diminished prevalence of scarlet fever, or whether the disease has assumed a milder form in recent years; the returns, however, of the London Fever Hospital and of the hospitals of the Metropolitan Asylums Board would seem to support the latter view."

We have little hesitation in saying that the disease *has* assumed—or more correctly, *has been made* to assume—"a milder form." There are few diseases where the sanitary conditions surrounding the patient seem to have more influence on the degree with which the infective material produces its effect than in scarlatina. We, therefore, believe that improved sanitation has had much to do with the diminution of the fatality of scarlet fever. The dread of scarlatina as a domestic pest has also, we believe, tended to diminish its prevalence and fatality. The dread of scarlatina is almost as marked a social feature as the toleration of measles; therefore when scarlatina appears every one's hand is turned against the plague—the cases are notified, isolated, and removed to hospital in numbers; everything in contact with the affected persons is destroyed or disinfected—these, we believe, to be the real causes of the diminished fatality and diminished virulence in the type of scarlatina. If measles received the same attention probably similar favourable results would follow in that disease as in scarlatina.

Dr. Tatham remarks, regarding the ages of those who die of scarlatina :—

"In each of the decennia dealt with the mortality from scarlet fever was higher among males than among females, both at all ages and also in the case of children under ten years old, but, among persons aged from ten years to forty-five, the female rate in each decennium appears to have been almost uniformly the highest."

The death-rates from this disease among children at the earlier ages show "that scarlet fever, like diphtheria and unlike whooping-cough, is less fatal to infants under one year of age than to those in their second, third, fourth, or fifth years; and this is so whether the facts for the earlier or for the later decennia are considered."

Regarding diphtheria Dr. Tatham remarks :—

“The annual rate of mortality from diphtheria, which in the two preceding decennia had fallen from 185 per million to 121, again rose to 163 per million in the decennium ending with 1890. It is during the periods of childhood and early youth that the mortality from diphtheria is especially formidable; it is relatively low at ages from fifteen to twenty years, and tends to become still lower as life advances. It is interesting to note that at all ages up to forty-five years, and especially between five and fifteen years, the mortality is uniformly higher among females than among males, whilst at ages from forty-five to seventy-five years the reverse holds good. The increase of diphtheria mortality in recent years has occurred during the earlier ages exclusively. In the last two decennia diphtheria mortality has increased among children under five years of age from 472 per million living to 690, and among children from five to ten years of age from 291 per million to 424. The 1881-90 rate from five to ten years of age was even higher than the very high rate in 1861-70.

Referring to a table concerning deaths under five years of age Dr. Tatham continues :—

“Diphtheria agrees with scarlet fever in being less fatal to infants in their first year of life than in any other year of the first five. The first year of age is the only period at which diphtheria mortality has decreased during the last decennium.

Dr. Tatham reiterates the complaint made by his predecessor concerning the confusing nature of the certificates regarding deaths from diphtheria and croup, and states the practice followed at Somerset House in classifying these doubtful cases :—

“It is the practice in this Office to class under the head of Diphtheria all deaths which are referred to ‘membranous croup;’ deaths returned as from croup simply being referred to the heading ‘Croup,’ among diseases of the respiratory system.”

Dr. Tatham notes a marked decrease in the mortality from *whooping-cough* :—

“The mortality caused directly by whooping-cough, which in the two previous decennia had been equal to 527 and 512 per million respectively, fell to 450 in the decennium under present notice. In each of the three decennia the mortality from whooping-

cough was heavier among females than among males. As in the case of measles, and for a similar reason, the relative mortality from this disease at different periods may best be ascertained by examination of the rates amongst children at the earlier ages . . . Throughout the last three decennia, with a single exception, whooping-cough mortality showed a decline in every year of age under five. In each period the mortality was highest in the first year, and decreased rapidly in each subsequent year."

Regarding "*fever*" Dr. Tatham makes the following interesting remarks:—

"The mortality from 'fever,' without distinction as to the forms of disease included under that term, was equal to 235 per million living. It was less than half of the mortality in the ten-year period ending with 1880, and hardly more than one-fourth of that in the preceding decennium, 1861-70. Since the year 1868 the three chief forms of disease in this unsatisfactory group have been separately classified in the returns of the General Register Office. Accordingly [a table] shows the mean rates for typhus, for enteric fever, and for simple or ill-defined continued fever, respectively, in each of the last two decennia. It would appear from the figures [in this table] as though the mortality from both typhus and simple continued fever had fallen in recent years even more rapidly than that from enteric fever. There is no doubt that typhus is gradually becoming extinct in England, but it is at least probable that many of the deaths formerly ascribed to 'Continued Fever' were really cases either of typhus or of enteric fever, so that the diminution of mortality from simple continued fever is, in part, only apparent. If this is the case, then the proportional decrease in enteric fever mortality must be actually greater than it appears to be from the Tables, the true rate in 1871-80 having been higher than 322 per million.

"The decrease in 'Fever' mortality has been by far the greatest among children under 5 years and among persons above 55 years of age, whilst it has been proportionally least among persons aged between 15 and 35 years.

"Enteric fever mortality appears, according to the subjoined table, to have shown a remarkably steady decline since 1875; the uncorrected rate at all ages having fallen from 374 in the quinquennial period 1871-75 to 179 in the five years ending with 1890.

"At ages under 20 years, females suffered more heavily than males during 1871-80, and also (though the excess was less

marked) during 1881-90. At ages above 20, males suffered rather more severely than females in 1871-80, and very much more so in 1881-90. In other words, the improvement in the male rates has not been commensurate with the improvement in the female rates, and this is especially noticeable among adults. May not difference of occupation or of habit have been operative here?"

TABLE J.—*England and Wales.—Death-rates from Enteric Fever per Million living at all Ages.*

Quinquennia	Persons	Males	Females
1871-75	374	375	373
1876-80	277	281	273
1881-85	216	230	203
1885-90	179	195	164

The marked decrease in *diarrhoeal diseases* is thus referred to:—

"The annual mortality from diarrhoeal diseases, which had previously fallen from an average rate of 1,076 per million in 1861-70 to a rate of 935 in 1871-80, fell further and much more decidedly in the ten-year period under present review, when the mean rate did not exceed 674 per million."

It is at the extremes of life that diseases of this class are most fatal, especially in early infancy—that is, during the first year of life. The decrease in mortality is less in proportion at this early age than at the later periods of childhood, and a table is appended to illustrate this point:—

Decennia	YEAR OF AGE						Total under 5 Years
	Under 1 year	1—	2—	3—	4—		
1861-70	19,645	6,097	1,309	525	333		5,985
1871-80	19,817	5,650	998	344	192		5,728
1881-90	16,044	3,768	601	232	145		4,346

Dr. Tatham attributes the decrease in mortality of

diarrhoeal diseases mainly to sanitary improvements, but also admits that some of it is, no doubt, due to more accurate certification of deaths. "Many deaths which would in earlier days have been referred to diarrhoea without mention of its cause, are now attributed with greater precision to the actual diseases of which diarrhoea is often a symptom merely."

With regard to *puerperal fever*, Dr Tatham writes:—

"The total deaths in 1881–90 assigned to puerperal fever and other accidents of childbirth numbered 42,092, and were equal to a rate of 297 per million females living, the rates in the decennia ending with 1870 and 1880 having been 321 and 325 respectively. If, however, the mortality from these causes is expressed in relation to births (which is the only correct method) instead of to females living, it is found to differ but little from that of the two preceding decennia, the rates having been 4·69, 4·75, and 4·73 per 1,000 births, respectively. There was, however, an actual decrease of mortality in the last decennium, calculated in the ordinary way, for in consequence of the system of inquiry referred to at page xxii. nearly three thousand deaths, which in the first instance had been indefinitely certified, were added to the total deaths from puerperal fever and childbirth during that period. In this connection it is important to remember that with respect to a large number of deaths taking place during the period of childbirth, no intimation of the fact of recent delivery appears in the medical certificate."

Dr. Tatham, having disposed of the features regarding the mortality and prevalence of zymotic diseases, discusses the deaths and death-rates from *constitutional diseases*. Owing to the new classification of causes of death the mortality statistics (during the decade 1881–90) regarding constitutional diseases, *considered as a class*, cannot be compared with the previous decade, or as Dr. Tatham puts it:—

"This class of diseases, as constituted to-day, is in the aggregate but imperfectly comparable with what had been known as the constitutional class prior to 1881. Several of the diseases formerly included in that group have been excluded from our present constitutional class, which, on the other hand, now includes diseases that were originally distributed otherwise."

Dr. Tatham thus deals with the mortality from malignant

disease, which has recently become such an alarming feature in our Vital Statistics :—

“ The deaths referred to cancer or malignant disease, which in the two decennia immediately preceding had corresponded to annual rates of 384 and 468 respectively in each million persons living, further rose in the decennium last ended to 589. Throughout the entire period the increase has been steadily progressive from year to year. If, therefore, the correctness of the above figures be accepted without further question, it will appear that, in the course of the last twenty years, the mortality from malignant disease has increased by 53 per cent. It is only right, however, to mention that within the last six years of the recent decennium the sum of the deaths ultimately referred to cancer has been augmented by not fewer than 1,548, in consequence of the system of inquiry already referred to. These deaths had increased the rate of cancer mortality in the recent decennium by 6 per million. Moreover, the experience of the last ten years lends support to a contention advanced in the last decennial supplement, namely, that, apart from the additions just adverted to, the increase is not wholly real, but may be accounted for, to some extent, on the assumption that the true nature of obscure cases of malignant disease has been recognised with ever-increasing certainty in recent years, and that, as a consequence, the statement of death causes by medical men has been made with greater precision than had formerly been the case. The experience of 1881-90 again confirms that of the earlier decennium in showing that the increase of cancer mortality is greater among males than among females. Thus, Dr. Ogle, writing in 1885 on the increase of mortality from malignant disease in 1871-80, remarked that the rate among males had increased within twenty years by 62 per cent., whilst the rate among females had increased by 43 per cent. only. The figures now available show that if the recent decennium is contrasted with 1861-70 the increase of mortality has been as great as 78 per cent. among males, the increase among females having been 42 per cent.

“ In the recent decennium the mortality from cancer among persons of both sexes was low up to the age of 25 years, and was not high until after the 35th year of life. Among males from 25 to 35 years old the mortality has increased since 1871-80 by 13 per cent., which is the lowest rate of increase observed at any period of life. Among females at the same age the rate shows, exceptionally, a decrease of one per million living. This is the

solitary instance in which even the slightest abatement is apparent in the ravages of cancer ; and even this exception will be found to conform to the rule, if the rates of the recent decennium be compared with those of 1861-70 instead of with those of 1871-80. The excess in the recent decennium, as compared with its predecessor, increases rapidly and progressively as age advances, reaching 44 per cent. for males between 55 and 75 years of age, and 30 per cent. for females over 75."

Having regard to the very large proportion of deaths which are caused by tubercular disease, especially by phthisis, it is extremely gratifying to find that mortality from diseases of this group has substantially diminished during the decennium 1881-90.

"The aggregate mortality from tubercular diseases as a group has decreased continuously throughout the last three decennia, the rates having fallen from 3,240 per million in 1861-70 to 2,420 in 1881-90 ; but, in spite of this decline, the aggregate death-toll from diseases of the tubercular group is still so heavy as to demand constant and watchful attention. On reference to Table 5 it will be seen that pulmonary consumption, the principal disease in this group, is mainly fatal during adolescence and maturity, whilst tabes mesenterica, acute hydrocephalus, and the remaining forms of tuberculosis are fatal chiefly to young children. In fact, the mortality from tubercular diseases, as a group, is found to be very serious throughout the entire span of life, from infancy to old age.

"Tubercular phthisis, the most destructive member of the group, caused a mortality, in the recent decennium, equal to 1,724 per million ; these figures indicate a life saving on the rate of 1871-80 equal to 392 per million living, the life saving in 1871-80 as compared with the previous decennium having been 359 per million. In the course of the last twenty years the crude mortality from phthisis has decreased by 30 per cent. Among males the rate of decrease has been equal to 25 per cent., and among females to 35 per cent.

A table is given showing the annual mortality from phthisis by sexes, which gives very interesting results which are thus stated :—

"From the year 1851 to 1865 the phthisis rate was greater among females than among males, although the difference gradually diminished as time went on. Ever since the year 1866, however,

the mortality has been uniformly in excess, not among females as formerly, but among males; and in the last two decennia the excess of the male rate over the female rate was greater than had been the excess of the female over the male rate in the first decennium included in the table. From information obtained since 1890 it has been ascertained that a similar change in the sex incidence of phthisis mortality is still going on. As had been the case in the preceding decennium, so was it also in the ten years under present review, the mortality from phthisis showed a decline at each of the eleven age-groups in both sexes, with the single exception that in 1881-90 the rate among males over 75 years was higher by 14 per cent. than in the preceding ten years."

With respect to other forms of tubercular disease Dr. Tatham remarks:—

"The term 'Other Tubercular Diseases' includes the diseases known as *tabes mesenterica*, tubercular peritonitis, tubercular meningitis, and general tuberculosis or *scrofula*. It has before been stated that the diseases of the present group mainly affect infants and young children. Table 2 shows that among children under five years old the deaths from tubercular diseases were relatively more numerous than those referred to any other heading in the table, with the exception of respiratory diseases; tubercular diseases contributed nearly 8 per cent. to the mortality from all causes. The aggregate death-rate from these forms of disease has shown a slight decline in the course of the last three decennia, but the rate in 1881-90 appears, according to the tables, somewhat lower than, in strict accuracy, it ought to be; for, ever since the year 1881 the deaths referred to chronic hydrocephalus have been removed from the tubercular class to which they had previously belonged, and, in deference to the revised classification of the Royal College of Physicians, have been placed in the class of nervous diseases. This discrepancy, however, has not very seriously affected the calculated mortality from 'Other Tubercular Diseases.' As in the case of phthisis, the mortality from other tubercular diseases is considerably higher among males than among females."

We regret that space does not permit us to enter minutely into an analysis of the other causes of death as detailed by Dr. Tatham. We, however, note that the mortality from *diabetes mellitus* appears to have grown much heavier than formerly; diseases of the *nervous system* in the aggregate were lower; the mortality attributed to diseases of the

organs of circulation has steadily and rapidly increased throughout the last forty years; diseases of the *respiratory organs* have decreased somewhat. The mortality from diseases of the *digestive system* in the aggregate is slowly and steadily decreasing; diseases of the *urinary system* give a “rapid and progressive” increase. Deaths from violence have steadily decreased in proportion to the population, though suicides in this group show an increase.

(To be continued.)

The Essentials of Experimental Physiology, for the Use of Students. By T. G. BRODIE, M.D. London: Longmans, Green & Co. 1898. Pp. 231.

THIS work is published uniformly with the *Essentials of Histology*, by Professor Schäfer, and with Professor Halliburton's *Essentials of Chemical Physiology*. The three volumes make a technical library invaluable and truly essential for all practical workers in a physiological laboratory. The present volume begins with a description of the most commonly-used physical instruments—as batteries, induction coils, keys and commutators. This chapter is, perhaps, the least satisfactory in the volume; the reactions which are described as taking place in the galvanic cells, and the theory of the induction coil, would hardly satisfy the requirements of a physicist. The remainder of the book, which deals with physiology proper, is, however, deserving of high praise. The descriptions of the instruments, and the directions for the performance of the different experiments, leave little to desire in the way of fulness and clearness; while the physiological conclusions to be drawn from the experiments are generally stated with sufficient precision. Much of the apparatus described is apparently new, and often very ingenious and practical. The book is intended for two classes of students—an elementary class and an advanced class. The two courses are not separated as in Professor Halliburton's volume, but the elementary work is printed in larger type. It includes the use of electrical apparatus, record of muscle curves, stimulation of nerves by heat, electricity, and

mechanical and chemical influence, record of the movements of the frog's heart and the action of the vagus on it, and a study of reflex action in the frog.

The advanced work is very extensive, and includes a large number of experiments which under existing circumstances could not be performed by students. Indeed, the book seems to us to be much more adapted for the use of lecturers and demonstrators than for the use of students. Students will, however, find the descriptions of the experiments of the greatest service to them in enabling them to understand and follow their lectures and demonstrations. After the general muscle and nerve physiology, we have sections on the heart, not only of the frog but of the mammal, including simultaneous record of the auricles and ventricles. Electro-physiology is all contained in one chapter. There are chapters on blood-pressure experiments, on co-metric experiments on kidney, and the action of poisons—as digitalin and neurin—on the kidney volume and blood-pressure, experiments on the nervous regulation of respiration, on the salivary secretion in the dog, and on reflex action; while the experiments on the special senses are confined to vision, and are all contained in the last chapter.

The text is profusely illustrated with drawings of apparatus and curves, while there are two folded plates giving the record of a fatigue curve in muscle, and a blood-pressure and respiration record during asphyxia. On the whole, the work is one of great merit, and calculated to be very helpful to teachers and senior students, to all of whom we would most cordially recommend it.

The Medical Annual and Practitioner's Index : A Work of Reference for Medical Practitioners. Sixteenth year.
Bristol : John Wright & Co. London : Simpkins, Marshall, Hamilton, Kent & Co., Ltd. 1898.

THE Medical Annual has been so long and so favourably known to our readers that it is almost unnecessary to do more than notify that the issue for this year is published. And we cannot understand why the publishers delay its appearance until the medical practitioners are submitted to

the temptation of substituting for it some other of the many annuals. We are, however, bound to acknowledge that print, paper, illustrations, and binding tell that the publishers have well and ably performed their duties, even if they are slow.

When we come to examine the literary part of the Annual we find that the present issue contains an atlas of the "Bacteria Pathogenic in Man," the beautiful illustrations of which are accompanied by a practical description of the method of isolating and examining these diseased germs, from the pen of Mr. S. G. Shattock, F.R.C.S., of the Royal College of Surgeons Museum. This contribution alone is worth the whole price of the Annual, and is one of those bold advances which gives the work a value greater than any of its rivals. Besides this departure we have another new one, in a report of the legal decisions which either affect the medical profession directly or have reference to the public health.

The rest of the volume possesses the excellences which secured approval from the profession for many years past; and we would further remark on the present issue, if it were not for the objectionable portrait pictures that deface the article on the modern treatment by stretching of Pott's caries of the spine. To depict the little patient having his spine stretched may add clearness to the letterpress, and make the matter more intelligible to the reader; but why give portraits of operators, on-lookers, and nurses. If this objectionable feature is to find a place in succeeding volumes we shall be grievously disappointed and pained. As we, with our old-fashioned ideas, understand medical writing—it is that medicine as a science may be advanced. Medical portraits with methods of treatment were introduced in the sixties by "Professor" Holloway, and gentlemen practising the science and art of medicine should leave such methods of acquiring notoriety to quacks and charlatans.

There are some good X-ray photographs and some coloured illustrations—one of the leucoma of the tongue, which beautifully shows the precancerous stage.

We notice with pleasure that the publishers contemplate bringing out a general index to the last twelve volumes.

Such a work will be very welcome to all busy practitioners, students, and those who spend their leisure amongst their books.

The Johns Hopkins Hospital Reports. Volume VI. Baltimore: The Johns Hopkins Press. 1897. Pp. 414.

WE have frequently had to bring under the notice of our readers the great value of this publication. The present volume shows no falling-off in either the interest or value of its contents. The matter is divided into two parts. The first is a report on Neurology, by Dr. Henry J. Berkley, whose investigations have done so much to advance our knowledge of the anatomy and pathology of the nervous system. The second part is a report on Pathology, and includes five papers by different authors.

Dr. Berkley's report is entitled "Studies on the Lesions produced by the Action of Certain Poisons on the Cortical Nerve-cell." In an introductory chapter he gives an account of what has already been done by the chromate of silver method in the study of pathological lesions in the brain. He then gives his own results got by submitting rabbits to various poisonous agents, and studying the changes produced in the cortical nerve-cells. His observations were made by various methods, but chiefly by a modification of the chromate of silver method, in which phospho-molybdic acid is added to the silver solution. This modification allows of the entire brain being hardened in Müller's fluid, and is more certain in its results than the older methods.

The actions of acute and chronic alcohol poisoning, of serum poisoning (dog's serum injected into rabbits' vessels), acute and chronic ricin poisoning, and the toxin of experimental rabies are studied, and the results figured in a number of beautifully-executed photographs and drawings.

It would be impossible within our space to reproduce with justice the conclusions of the author, but we may say that the chief changes consist in a swelling, generally moniliform, of the dendrites with a loss of the granules or minute projections from these dendrites. Important changes were

also observed in the nuclei and nucleoli, as well as in the blood-vessels, lymphatics, and neuroglia. In an addendum to his report Dr. Berkley describes a case of asthenic bulbar paralysis with autopsy; and gives a most interesting description of the connection between the cortical nerve-cells and the fibres—association and others—with which they are in relation. He shows that the nerve-cell is insulated except at the tips of the granules, and that the nerve-fibres are insulated except just at their terminations. These terminations, which are bulbous or biscuit-shaped, come into close contiguity at certain definite points with the exposed granules, the arrangement being somewhat different in the case of the association fibres and in that of the collaterals of the axones of the psychical cells. He concludes that “the interpretation of the objective existence of the terminal apparatus of the nerve-fibres cannot be made but in one way, namely, that the impressions conveyed from external sources to central cell, and from local cell to local cell, is not accomplished by a diffusion of the excitation through the whole cortex, or even at various points along the course of the finer branches of the axones, but at single points, perfectly definite in their distribution, and that these points are situated only at the extremity of the nerve-fibre twigs, in the form of a histologically exact formation—the bulbous ending of the nerve-fibre—which in itself constitutes the only means for the carrying over of the cellular forces from axone to dendrone, and from cell to cell, and is in entire conformity with the conception of Waldeyer of the entity of the neurone, each cell standing as an unit in the nervous formation, and only in continuity with others at definite points.”

The first paper in the report on Pathology is by Dr. Thomas S. Cullen, and describes a case of puerperal sepsis due to the introduction of an elm tent into the uterus for the purpose of producing abortion. The lamellæ of the tent separated, and by the contractions of the uterus were forced into the uterine substance and caused fatal sepsis.

The second paper is on “Pregnancy in a Rudimentary Uterine Horn—Rupture, Death, Probable Migration of Ovum, and Spermatozoa.” The clinical report is by Dr. G. L. Wilkins, the pathological report by Dr. Cullen. Th

patient was 29 years of age, and had one child; she died of internal haemorrhage in the fourth month of pregnancy, six hours after rupture of the sac. The abdomen contained four litres of blood, and a three or four months' foetus in its membranes. There was a right-horned uterus, to which a pregnant left rudimentary horn was attached by a muscular band. This pregnant horn had ruptured. The corpus luteum was on the side opposite to the pregnancy. The pedicle joining the two horns contained a canal which was closed at both ends, so that there was no communication between the two uteri. The ovum must have migrated through the abdominal cavity from the right ovary to the left Fallopian tube; and as the canal connecting the two uterine horns was closed, the spermatozoa must have passed up the right Fallopian tube, through the abdominal cavity, and down the left tube. It is interesting that in the right tube were contained cells of the placenta which must have been picked up from the abdominal cavity after the rupture.

An exhaustive review of the literature of such cases shows that they are rare, that most of them rupture between the fourth and fifth month, while some go to term. "Anatomically they differ from tubal pregnancies, in that the uterus is flexed towards the side opposite to the pregnancy; in that the pedicle of the foetal sac springs from the uterus at the internal os instead of where the tube comes off, and that the round ligament springs from the outer side of the sac instead of from the uterus. Clinically, the symptoms in tubal pregnancy and in pregnancy in the rudimentary horn where rupture has occurred are virtually the same. On examining the uterus, however, the sound reveals that in the latter case the canal is flexed at the internal os, and that the uterus deviates to the side away from the tumour. The pedicle of the sac commences at the internal os instead of at the uterine cornu, and is usually sufficiently long to allow free mobility of the pregnant rudimentary horn. The treatment consists in amputation of the pregnant rudimentary horn." This valuable paper is illustrated by three plates, and has appended to it a very complete bibliography.

The third paper, also by Dr. Cullen, is on "Adeno-myoma Uteri Diffusum Benignum." Three cases are recorded,

and figured in the plates. A very complete account of the tumour, which can usually be distinguished from ordinary myoma only after removal, is given, together with an extensive review of the literature of the subject.

The fourth paper is a large work, extending to 100 pages, by Dr. William D. Booker, entitled "A Bacteriological and Anatomical Study of the Summer Diarrhoeas of Infants." In the intestines of infants affected with summer diarrhoea the conditions for the growth of bacteria are different from those which exist in healthy, milk-fed infants. In the latter the bacteria consist mainly of two varieties, *B. lactis aerogenes*, which grows chiefly in the upper part of the small intestine, is scanty in the large intestine and in the faeces, and *B. coli communis*, which is scanty in the upper part of the intestine, increases as we descend, and occurs in enormous numbers in the large intestine and in the faeces. Beside these two constant bacteria, Escherich has isolated twelve others, which, however, are few and irregular in their occurrence and distribution. In children affected with diarrhoea the distribution of *B. lactis* and *B. coli* is much more uniform through the intestine, *B. coli* being numerous in the duodenum, and *B. lactis* in the colon and stools. And also the inconstant varieties are far more numerous than in health, and often greatly exceed in number the two constant forms.

No single micro-organism can be looked on as the specific exciter of the summer diarrhoea, but the disease must be attributed to the activity of many varieties, of which streptococcus and *Proteus vulgaris* are the most important. The former may occur in all parts of the canal from the stomach downwards, but are most abundant in the lower ileum and colon. They are peculiarly associated with ulceration, and it must be supposed that they play a part in the ulcerative process. *Proteus vulgaris* is found in the stools in a large proportion of severe cases, but seldom in those of a milder kind. The patients often show general toxic symptoms, pass watery or pasty putrid stools, but do not manifest evidence of serious inflammation of the intestine. Beside the streptococci, proteus, and the two constant bacteria, many others are found with pathogenic properties—as varieties of bacilli and spirilla.

The epithelium of the intestine appears to be the chief protection against invasion of the mucous membrane by bacteria; so long as it is intact the organisms do not penetrate. The first step in the pathological process is a lesion of the epithelium. These lesions as well as those in other parts of the body show that the bacteria exert a direct injury on the tissues in some cases, while in others it is indirectly exerted by the production of soluble poisons. Except in the case of the lungs, where bacilli and cocci are often present in great numbers in the pneumonic areas, a direct relation between the bacteria and the lesions of the solid organs can seldom be demonstrated. The lesions more commonly resemble those caused by the absorption of toxalbumins—such as necrosis of tubular epithelium and tube casts in the kidneys, haemorrhage in the spleen, focal necrosis of lymph follicles, cirrhosis of liver.

The pathological lesions in the inflammatory forms of summer diarrhoea are serious and variable, sometimes chiefly confined to the intestine, sometimes more pronounced in other organs. When the disease passes into an inflammation of the stomach and intestine it ceases to be a local affection and becomes a general infectious disease or intoxication, in which the other organs of the body are affected by invasion of bacteria or absorption of toxic products.

A correspondence between the clinical features and the bacteriological findings and anatomical changes exist in many cases, so that three principal forms of summer diarrhoea of infancy may be distinguished, viz.—dyspeptic or non-inflammatory diarrhoea, streptococcus gastro-enteritis, and bacillary gastro-enteritis. This most valuable paper is illustrated by six plates, four of which are coloured.

The last paper, on the "Pathology of Toxalbumin Intoxication," is by Dr. Simon Flexner. It is for the most part of an experimental character, in which the effects of diphtheritic, streptococcus, cholera, ricin, and abrin toxins are studied. The work extends to upwards of 150 pages, contains an extensive record of the literature of its subject, and is illustrated by four admirable coloured plates. The animals employed were rabbits, guinea-pigs, and mice; but besides the study of the lesions caused in them, full consideration is given

to the lesions found in men in diphtheritic and other forms of intoxications. The lesions found in the brain by Berkley, which are referred to in the early part of this notice, are part of the results of this very extensive research. It would manifestly be impossible, at the end of a long notice, to do any justice to such a work as that of Flexner by attempting to give any abstract of his results. We can only say that these results are of the highest interest and importance, and that the work is, in every respect, a most valuable contribution to pathology.

The Scottish Medical and Surgical Journal. Edited by
WILLIAM RUSSELL, M.D., F.R.C.P., Ed. Vol. I. With
six Coloured Plates and seventy-four Illustrations in the
Text. Edinburgh: William F. Clay. 1897.

ALL connected with the production of the first volume of the “Scottish Medical and Surgical Journal” are to be congratulated on the success of their work.

This is the first journal Scotland has possessed which professes to be National, and to represent medical work all over Scotland. The journals which have hitherto existed have been local. This has been regarded by many as unfortunate, for it was felt that Scotland, with its great medical schools and its varied activities, would be more suitably represented by a journal which contained work from all parts of the country.

A scheme on the lines indicated met with cordial approval in all quarters. A preliminary meeting was held in Edinburgh to forward the establishment of such a journal, and Glasgow, Dundee, and Aberdeen warmly, actively, and practically supported the view. Every number of the Journal testifies to the wealth of material that his Scotch medical brethren have placed at the disposal of the editor.

In the volume before us all the Scotch schools are represented. The first number is opened by a practical paper on the “Management of Labour in Twin Pregnancies,” by Dr. Stephenson, of Aberdeen, in which we are glad to find honourable mention of Murphy’s classic on “Midwifery,” a book which is too little read to-day. “Cortical Stimuli,” the

second paper, is from the pen of the well-known specialist, Dr. Clouston, and is, like all his writings, a thoughtful, well-considered, hopeful contribution, pregnant with good both to the specialist and the practitioner. He writes:—"The results of modern physiological and pathological investigations show that we must, more and more, regard that organ as a very differentiated one in the use of drugs."

"In psychiatric practice we need, above all things—1st. a perfect hypnotic; 2nd, a perfect cortical mental sedative; and 3rd, a perfect cortical mental stimulant. All of them must affect the mental and sensory areas, in their cell elements primarily, leaving the motor, organic and trophic areas unaffected by the drugs we use."

"Medical Folk-Lore" is the subject of a chatty, readable paper by Dr. Fox, in which he refers to the use of amulets; but strangely omits any reference to the use of *ossea triquetra* and pre-historic trephining, from which practice the use of amulets has been traced by M. Broca. His reference to the use of "vitriol" by Sir Kenelm Digby is slightly misleading, the chemical used was impure ferrous sulphate—"green vitriol"—a very different article from sulphuric acid.

Professor Ewart contributes a note on "Telegony," a subject which has been fruitful of controversy since the days of the Patriarchs.

Dr. Joseph Bell's "Harveian Oration" deals with progress in medical science before Harvey, during his time, and after him. It is a pleasantly written retrospect of the past; but the author does not seem to fully realise the progressive spirit of the fifteenth and sixteenth centuries. He quotes Riolanus, who, as is well known, was a reactionary, but even so, we think, from a fairly intimate acquaintance with the *opera omnia* of that French physician, that Harvey's demonstration on the dog, in London before Riolanus, stayed his opposition to the promulgation of the discovery of the circulation of the blood.

We cannot blame an ordinary man for being a reactionary amidst the vile surroundings of a Valois King. It took a Paré to resist such evil influences. The whole atmosphere of the Valois and the Medicean woman was soul-destroying. Their nature was as free from altruism and all the better

instincts of humanity as is that of a hyena. France knew no greatness until they passed away, and art, science, and literature were unknown in their courts.

Space forbids any mention even of other articles in this volume; but we may say that the 1,127 pages which it contains are all interesting and instructive, and we heartily wish our contemporary success, for no effort has been spared to secure it.

A Manual of Obstetric Practice. By A. DÜHRSSEN, M.D., Berlin. Translated by J. W. TAYLOR, F.R.C.S., and FREDERICK EDGE, M.D. London: H. K. Lewis. 8vo. Pp. 304. 1897.

ENGLISH readers owe the translators of Dührssen's Manual a debt of gratitude for bringing these little works of midwifery and gynaecology within their reach.

Unlike the majority of manuals they abound in interesting and more or less novel information.

The midwifery that we are now considering can be read with interest and profit, alike by the student, the general practitioner and the obstetric specialist. The first will find comfort in the author's direct, clear and concise descriptions. As a safe guide for practice the book can, in most instances, be thoroughly relied upon; while the great individuality of the writer and the novelty of some of his suggestions cannot fail to interest those who have given the subject their special care.

What, however, strikes us with greatest force in reading this work is the minute way in which small matters of detail are dealt with. Thus we read that the accoucheur should never use the nurse's appliances, for the reason that he cannot ensure their asepticity; that he must be able to guarantee that all instruments he himself employs are surgically clean. If a confinement should be far advanced when the accoucheur enters the room, and time for sterilising the hands be not sufficient, Leopold's suggestion is advised—namely, the wrapping the hands in two antiseptic towels, and so supporting the perinæum. With suggestions as precise as these the book abounds. To many they are

plain rudimentary principles, but the author does well in leaving nothing to individual forethought.

We are not in agreement with the assertion that *ante-partum* syringing of the vagina should be resorted to in every possible case.

Performed as here advised it is no doubt a perfectly safe proceeding, but quite unnecessary in the majority of instances. On the other hand, it cannot be viewed otherwise than as a highly dangerous proceeding should the slightest mistake occur in the complicated aseptic technique.

There is more than one fault to be found in the English translation. Thus we read that in eclampsia pneumonia may result from the swallowing of foreign matter. "Aspiration" is no doubt the word which is intended here. Again Schauta is made to say that "operations 'worsen' the prognosis." Here and there we come upon purely German words which, however, in no way mar the efficiency of the book.

We now turn to Dührssen's special suggestions, which have already made his name famous throughout the world. To him is due the introduction of air-tight tins containing sterilised iodoform gauze, and the value of these cannot be gainsaid. His method of plugging the atonic uterus with this material for atonic *post-partum* haemorrhage is a safe and almost certain treatment, and an enormous addition to our resources, while for every other form of haemorrhage this gauze can be used in an emergency.

But when the author recommends its employment in cases of adherent placenta with an atonic uterus in preference to manual delivery we cannot agree with him. Even in one of his own cases, where this course was adopted, we read that haemorrhage persisted: and, in any case, the cleanly removal of the after-birth would not be a more hazardous proceeding, and infinitely preferable, from both patient's and doctor's standpoint, to that of the plug.

The author's treatment for eclampsia has received much attention, and has been adopted in not a few of the largest clinics; we are not, however, enamoured of it, and cannot believe that it will have any but a short existence.

Its main features are deep anaesthesia on the appearance

of the first fit. Then rapid delivery often involving the deep splitting of the cervix by lateral incisions. Perineal incisions also are resorted to in the event of this structure offering any serious obstruction to rapid delivery.

These several incisions are not always easily closed by suture, after the child is born, and the haemorrhage from them is at times alarming. We have resorted to this plan on only one occasion, and are by no means satisfied that it is less harmful, or that it gives better results than other well-tried methods.

Vaginal Caesarean section is another departure in surgery of, at all events, limited application. The author has had occasion to perform it once in a woman who had undergone vaginal fixation of the uterus, presumably by Dührssen's method, an operation that we have always considered unjustifiable.

The Pocket Formulary for the Treatment of Diseases in Children. By LUDWIG FREIBERGER, M.D., Vienna; M.R.C.P., Lond.; M.R.C.S., Eng.: Clinical Assistant, Hospital for Sick Children, Great Ormond-street: Curator of the Museum, Pathologist and Registrar, Great Northern Central Hospital. London: The Rebman Publishing Company. 1898. Pp. 208.

THE author tells us that "the object of this little book is to give to the busy practitioner and the senior medical student, in a concise and handy form, all the information which may be required as regards the treatment of diseases of children by drugs."

The drugs are arranged throughout the book in alphabetical order. A brief account is given of their properties, uses, therapeutics, incompatibles, doses, antagonists and antidotes. Examples of formulae are also included in the case of most of the entries, and ingenious suggestions are made for the correction of unpleasant tastes.

The book is neatly printed on thin paper. There are not many serious errors, but more careful proof-reading would have been desirable. "Officinal" is throughout wrongly employed to denote drugs and preparations which are included in the British Pharmacopœia—"Official" is the cor-

rect term. In a short list of errata we find—"Page 204, line 19 from above, for cajuputi read cajeputi." Needless to say, the error lies in the correction. "Acidum Arsenicosum" is repeatedly printed instead of "Acidum Arseniosum" (*cf.* pp. 22 and 100). The former title is that by which "white arsenic" is described in the German Pharmacopœia. The word "adstringent" is what one might expect to meet in a bad English translation of a German work. "Inf. camomillæ," on page 111, is presumably intended for preparation.

Taking the work as a whole, however, we are much pleased with its arrangement and contents, and it is our pleasant duty to recommend it as a reliable and convenient formulary for use in children's diseases. An appendix gives lists of preparations suitable for gargles, hypodermic or parenchymatous injections, inhalations and sprays, for nasal pharyngeal and laryngeal application, and for rectal application. Quinine might advantageously be added to the preparations suitable for gargles. It is most efficacious in all forms of bacterial sore throat, and if merely mixed with water (one grain to a wineglassful) it does not taste excessively bitter and acts topically more beneficially than if dissolved. Another omission from the list of preparations suitable for inhalations and sprays is resorcin. It makes an excellent spray combined with glycerine and peppermint water or rose water, in the proportion of 10 grains to the ounce.

A "Therapeutic Index" brings the work to a close. It consists of a list of drugs under the name of a disease or a symptom. Its value may be inferred from the entry "Scarlatina, acetanilidum, caffein, natrio-benzoicum, phenolum, vini gallici spiritus."

The Monthly Cyclopaedia of Practical Medicine and Universal Medical Journal. Edited by CHARLES E. DE M. SAJOUS, M.D., Philadelphia. The F. A. Davis Co., Philadelphia, Pa., U.S.A. Philadelphia, January, 1898. Vol. I. New Series.

UNDER the above title our old friend the "Universal Medical Journal" enters upon a new and enlarged career. So also will its corresponding Annual of the Universal Medical

Sciences. The latter publication will no longer present excerpts from the year's literature arranged in order under a general heading, as in the previous eleven volumes of the Annual; but each disease will be in future described *in extenso*, and the new features connected with aetiology, pathology, treatment, and so on, which the year has brought forth, will be inserted in their respective places in the text. The volume, when completed, will include all the general diseases included in text-books on practical subjects—medicine, surgery, therapeutics, obstetrics, &c.

The companion publication of the Annual—the Monthly Cyclopædia of Practical Medicine—will consist of forty pages of matter, making up at the end of each year an additional volume of nearly 500 pages.

The "Monthly Cyclopædia" is subdivided into four sections. The first contains a series of reviews composed of some of the more important contributions of the year grouped in such a way as to introduce, when possible, controversial views. Such an arrangement, it was thought, would prove both instructive and readable. Each subject presented is only reviewed in part, however, and another issue may again treat the same question, but from another standpoint and with the assistance of different excerpts. The second section reviews questions thought by the editor to merit special attention, while the third contains brief reviews from the current literature which do not permit grouping, owing to their heterogeneous nature. Book reviews, &c., constitute the remainder of the new periodical, the first issue of which is now submitted.

The number before us contains a very able and instructive article from the editor's pen on the treatment of cancer by interstitial injections of alcohol.

Introduction to Chemical Methods of Clinical Diagnosis.

By DR. H. TAPPEINER. Translated, and with an Appendix, by E. J. MCWEENEY, M.D. London: Longmans, Green, & Co. 1898.

THE application of chemical inquiry to clinical diagnosis has long been in use to a limited extent, and no practitioner can afford to neglect its teachings.

Of recent years a great impetus has been given to its study, and a young and active school of physiological chemists have added much to our knowledge. This is especially true of the chemistry of the urine, which now covers so wide a field. Almost coincidently with the more detailed chemical investigation of the animal body has arisen the modern school of chemical microscopy, and no teacher of repute can hold his own without familiarising himself with the aims and methods of these two branches of study.

The small book under review represents an endeavour to give a succinct account of the more useful diagnostic procedures upon these lines. It is intended for use in the hospital ward and in the clinical laboratory, which has become an indispensable adjunct of a well-equipped hospital.

The translator and co-author has striven to compress within 150 pages a large amount of practical information, and we heartily congratulate him upon the success of his efforts, and predict a ready demand for the little book.

It consists of two parts. The first part is a translation from the sixth German edition of Tappeiner's admirable work. It deals mainly with the urine, but does not overlook the chemistry of the digestive tract, and of pathological fluids—transudates and exudates. In no other students' book that we know of are the urinary tests so clearly and amply explained.

The second part, modestly styled appendix, is from the pen of the translator. It is concerned with micro-biological methods of diagnosis—a department in which he is entitled to speak with authority. An excellent account is presented of the micro-chemical investigation of the blood, and the directions are so precise and clear that any one, with care, ought to be able to successfully carry out the needful examination. Similarly, the examination of sputum for tubercle bacilli is treated in minute detail. The remaining sections take up—the nasal secretion, gastric contents, faeces, urinary sediments (morphological elements), and inflammatory products. Very few inaccuracies or slips are to be found, and none which cannot be easily corrected in the second edition. We make no apology for directing the translator's attention to one or two that we noticed.

Page 47, for *creatine*, read *creatinin*, because creatin does not give Weyl's reaction with sodium nitroprusside.

Page 83, a chemical error occurs—"anhydrous acetic acid" should read "acetic anhydride." This latter compound, $\text{C}_2\text{H}_3\text{O}\text{--O}$, is quite a distinct body, and it is essential for the performance of Liebermann's test for cholesterin.

Pages 57 and 81, for "Di-calcium phosphate," read "Monocalcium phosphate," and page 86, *Reus* should be *Reuss*.

In speaking (p. 56) of the common brick-dust sediment of urates in the urine, it is, we think, a pity that the quadrurate theory of Bence Jones, amplified and proved by Sir W. Roberts, is not clearly formulated.

On pages 137 and 147 are examples of inelegant and slovenly sentences, due apparently to hasty writing.

But these are minor blemishes, and we can cordially recommend this unpretending work to all practitioners and students.

A Handbook of Medical Climatology, embodying its Principles and Therapeutic Application, with Scientific Data of the Chief Health Resorts of the World. By S. EDWIN SOLLY, M.D., M.R.C.S.; late President of the American Climatological Association. Illustrated in Black and Colours. London: J. & A. Churchill. 1897.

"THE non-existence of a systematic treatise on medical climatology, and the fact that this subject has engaged the author's attention for thirty years, may be advanced as the reasons for the preparation of this volume." We congratulate the author on the way in which he has concluded his self-imposed task. Publishers, printers, artists, and bookbinders have all well fulfilled their respective duties in the production of the very handsome octavo of xii. and 470 pages which now lies before us. The accomplished author, who has made name and fame on the other side of the Atlantic, happens to be the son of the late Mr. Samuel Solly, of St. Thomas's Hospital, London.

The first section of this work contains excellent short

chapters on "The Principles of Medical Climatology," "Physiology," "Ethnology," "Geographical Distribution of Disease," and "Classification of Climates." In the following section (pages 71-181) the writer deals with the forms of disease which are specially influenced by climate. The great bulk of this portion of the volume is, we are very glad to see, devoted to the consideration of phthisis. The author displays science, skill, and judgment in his observations and advice. We find an interesting item on p. 141—"The statements of Drs. Von Ruck, Weber, and others, show that sanitaria in which the charges are higher and a profit is made are resorted to by the desperate rather than the hopeful cases, and the results are not so good as in the purely benevolent institutions. My own observations as to the influence of prudence upon the progress of phthisis . . . corroborates these opinions of the value of sanitaria."

As might be expected, American health resorts receive the greater part of the author's attention. But other quarters of the globe are not neglected, and Ireland has been offered a passing mite. "*Bandarem*," Kilkee, and Kilrush are mentioned as seaside resorts. *Glengarriff* and *Queenstown* are favourably noticed, and one short paragraph tells us that "among popular summer resorts with good bathing may be mentioned *Bray*, *Dundrum*, *Kingstown*, on the eastern coast; *Howth* on Dublin Bay, *Rosstreror*, *Newcastle*, *Holywood*, and *Donaghadee*. The climate for all these places may be characterised as mild and damp." We cannot congratulate Dr. Solly on his knowledge of the geography and climate of Ireland. A special feature of the volume is afforded by the presence of a series of relief maps of the various great divisions of the globe.

The Eye as an Aid in General Diagnosis. A Handbook for the Use of Students and General Practitioners. By E. H. LINNELL, M.D. Philadelphia: The Edwards and Docker Co. 1897.

IN this prepossessing octavo of 248 pages we find the cream of existing ocular symptomatology, as applied—or applicable—to the purposes of extra-orbital diagnosis. The

author has applied the skimming process with a hand evidently skilled in cuts of precision, and one accustomed to the use of the necessary instruments. We read, with sympathy, the statement of the writer that it had long seemed to him "that this subject was too much neglected by the general practitioner. The record of the pulse, temperatures, and respiration, urinary analysis, &c., are among the everyday routine methods of diagnosis, but the indications furnished by the eye are too little understood, and too often overlooked." We thoroughly agree with this observation, and can well afford to congratulate ourselves that the author has undertaken the production of the volume which lies before us, from which we have derived so much valuable information, while we congratulate him on the very thoroughly judicious and orderly method which he has pursued to the completion of his self-imposed task.

"The book has been written from the standpoint of the specialist for the student and general practitioner. It embodies the personal experience of the writer during a general practice of twenty years, and fifteen years' experience in the treatment of ocular diseases, in addition to extensive reading." Every page of the volume bears abundant evidence of the excellent combination of theory and practice which the writer has brought to bear on the subject. There are, besides, some well-selected woodcuts, a few excellent coloured plates; that opposite p. 115 is an excellent diagram of the optic nerve fibres from the occipital cortex to the eye-ball.

Like some other trans-atlantic authors, we are inclined to think that Dr. Linnell is disposed to attribute too many headaches to eye-strain as their exciting cause; but it is almost the only point in which we at all feel that the volume is not perfectly reliable in its facts and its deductions. We will not attempt to criticise individual details; and will only say, in conclusion, that every general practitioner should at once possess himself of a copy of this book. It fills—and well fills—a previously glaring gap in medical literature, and no medical man can conscientiously postpone—in the present state of our knowledge—the opportunity of availing himself of the very valuable aids to general diagnosis which its author has so carefully collected and so skilfully arranged.

PART III. SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.^a

By SIR CHARLES A. CAMERON, M.D.; D.P.H., Camb.; M.R.C.P.I.; F.I.C.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.: Vice-President and ex-President of the Royal Institute of Public Health, and of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, and Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

HEALTH OF THE ARMY.

THE Report of the Army Medical Department for 1896, just issued, contains much interesting matter relating to the health of the army at home and abroad. In the Appendix there are several valuable reports dealing with hygiene, surgery, &c.

The average strength of the army in 1896 was 203,145 men, exclusive of commissioned officers. From this force the admissions into hospital were no fewer than 191,513, nearly equal to the whole number of troops. The deaths numbered 1,676, or in the ratio of 8·14 per 1,000 men. The sickness and death-rates were lower than in 1895. In the whole army, at home and abroad, there was only one case of small-pox. Enteric fever was less prevalent than the previous year, and less fatal. As compared with the mean rates for the previous years there was a decrease both in

^a The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

number of cases and deaths from this disease. Unfortunately, Dublin in 1896, as in many previous years, was the station most affected by enteric fever.

The rates of mortality in the army vary considerably in different parts of the Empire. In Canada the admissions to hospitals and the deaths of soldiers per 1,000 were the lowest. The admissions were 569·1 and the deaths 3·32 per 1,000. In the order of salubrity the United Kingdom comes next to, and but a little behind, Canada, the admissions being 645·1 and the deaths 3·58 per 1,000. The following were the death-rates in 1896:—

United Kingdom	-	-	-	3·58
Gibraltar	-	-	-	4·10
Malta	-	-	-	7·93
Egypt and Cyprus	-	-	-	13·28
Canada	-	-	-	3·32
Bermuda	-	-	-	5·77
West Indies	-	-	-	6·19
South Africa and St. Helena	-	-	-	4·76
Mauritius	-	-	-	8·88
Ceylon	-	-	-	8·23
China	-	-	-	7·48
Straits Settlements	-	-	-	8·88
India	-	-	-	15·29
On Board Ship	-	-	-	4·71

The average duration of each case of sickness was 23·61 days—the shortest 17·26 days, being in China; and the longest 28·10, in Egypt and Cyprus.

The average sick time per soldier was 22·22 days. In Bermuda, which has the comparatively high death-rate of 5·77 per 1,000, the average period of sickness per soldier is only 9·83 days, whilst in the West Indies, in which the death-rate differs but little from that in Bermuda, each soldier is, on the average, 28·69 days ill. In the United Kingdom the soldier was, on the average, 14·10 days ill; in Canada, 10·38 days; in South Africa, 19·92 days; in China, 32·05 days; and in India, 34·35 days.

The death-rate in the army in Ireland was 3·45; in England and Wales, 3·59; and in Scotland, 4·25 per 1,000.

In the United Kingdom the cases of enteric fever treated

in hospitals numbered 94, and of these 22 terminated fatally. In 1895 the admissions were 137, and deaths 35. This case mortality is very high, as compared with the case mortality in the civil population. No less than 12 of the deaths occurred in Ireland, and 6 of these took place in Dublin. The cases in Dublin numbered 24 according to the Director-General's Report, but in that of Surg.-Major-General Preston (P. M. O. for Ireland) it is stated that 26 men, 1 woman, and 5 children were admitted into hospital in Dublin, and that of these 7 of the men and 2 of the children died.

The cases of diphtheria numbered 244, but only 1 death from this disease, so formidable in our cities, was recorded. Were all cases of true diphtheria? In how many of them was the diagnosis confirmed bacteriologically by the identification of Loeffler's bacillus?

The average number of commissioned officers in 1896 was 4,031. There were 1,244 admissions of officers into hospital, and 17 died. The ratio of deaths of officers per 1,000 living was very low—very little over 4·2

The death-rate in the army is low; but it must be borne in mind that "invaliding" weeds out a large number of the sickly men, who ultimately die as civilians or reserve men. Out of the 99,821 men on the home establishment in 1896, 367 died and 2,173 were invalidated. The highest rate of invaliding was in the Foot Guards and the lowest in the Royal Engineers.

It would appear that a very large proportion of the youths who are anxious to become warriors have not the necessary physique to justify their admission into the army. In 1896 the number of recruits inspected was 54,574. Of these no fewer than 22,698 were rejected at once upon medical inspection, and 419 were found unfit within three months of enlistment. 42·3 per cent. of the recruits were found to be unfit for the army, by reason of deficient height, chest measurement, or weight, malformations, excessive loss of teeth, &c. It seems odd that giants should be refused admission to the army, but the statistics show that 41 recruits were rejected for "being" over height. For the opposite disability, under height, 1,570 were rejected. The highest ratio of rejection was on account of chest measure-

ment, 3·6 per cent. only were rejected from deficient height, whilst 4·7 per cent. were disqualified by reason of defective vision. It is strange that, in the case of boys and young men, the decay of teeth was so great as to cause the rejection of 19·75 per 1,000.

As regards age at enlistment, only 39 per cent. were over 20, whilst 43 per cent. were from 18 to 19 years of age. As the service in the army is for so short a time, the average age of soldiers must be that of very early manhood.

Some interesting statistics as regards the height of recruits are given. Dealing only with those finally approved of, we find that 3·95 per cent. were under 5 feet 3 inches. They were nearly all boys under 18 years of age. There were boys under 17 at all heights up to 5 feet 10 inches; whilst in every 10,000 recruits there were 29 boys whose height was from 5 feet 9 inches to 5 feet 10 inches, not one boy of greater height was found in the 54,574 recruits. Only 1 in 100 was 6 feet and upwards. The average height of the approved recruits, excluding boys under 17 years of age, was 5 feet $5\frac{6}{10}$ inches, and their average age 19·3 years.

Considerable space is devoted to the subjects of sickness and mortality of the troops in Colonial stations. The average number of troops serving in India was 70,484, exclusive of commissioned officers. From these troops the admissions to hospital numbered 97,738, and amongst them there were 10·78 deaths; 1,966 were invalided and sent home. On the average, nearly one-tenth of the soldiers were constantly sick. Every soldier was, on the average, 34·35 days ill, and the average duration of each case of illness was 24·77 days. The deaths from all causes were in the ratio of 15·29 per 1,000 living—a high death-rate, seeing that soldiers are at the most viable ages.

Enteric fever is the most serious of disease affecting our troops in India. In 1896 it caused 1,795 admissions to hospital, and 445 men succumbed to the disease—a ratio of 6·31 per 1,000 men. In India rather more than one-fourth of the patients affected by this formidable disease die from it. Enteric fever is more prevalent in Dublin than in any large town in the United Kingdom except Belfast, yet the death-rate from this disease is twelve times greater amongst the

European troops in India than it is amongst the population of Dublin. The disease is widely spread throughout India—not one of many military districts being exempt from it. In the Allahabad district it caused a mortality of 17·65 per 1,000 in 1896. At Quetta, where there was much enteric fever, the organisms, supposed to be the *materies morbi* of the disease, were detected by bacteriological methods in soda water!

In some cases cresses, grown in water "liable to pollution," were believed to have contained the *Bacillus typhosus*. The garrison of Mhow was supplied with water from the Birch lake, 5 miles distant. The cases of enteric fever being numerous, the water was examined and the "entire bacillus" was found in it—in the lake water and in "all the taps." The well water in the town was examined and found to be free from the dreadful organisms. It is rarely in England that the microbe of enteric fever has been detected in water, which there was the strongest reason to believe had caused an outbreak of enteric fever.

The Official Bacteriologist (Professor Hankin) reported that he had detected the bacillus in the water sent to him from the Lucknow waterworks.

There is a certain *Micrococcus Ghadiali*—so-called in honour of its discoverer, Dr. Ghadially, a native assistant in Professor Hankin's laboratory at Agra. It is harmless to man, but is antagonistic to the *Bacillus typhosus*. The curious experiment was tried of introducing this micrococcus into the water in a swimming tank which was found to be infected with the enteric microbe. In four days the enteric microbes had disappeared. The experiment was repeated in the water supply of the fort, and of the whole cantonment, with the result of an immediate and great falling off in the cases of enteric fever.

For the purification of water permanganate of potassium seems to be in general use in India, and, it is said, with very satisfactory results.

Our soldiers in India suffer terribly from venereal diseases. For some years past one man out of every two (in round numbers) is admitted to hospital affected with some form of venereal disease—syphilis and gonorrhœa are about equally

prevalent. At Madras the admissions from these diseases were in the ratio of 739 per 1,000 men. It is terrible to reflect on the amount of syphilitic poison our young and mostly unmarried soldiers import into the United Kingdom from India. How much of this poison will circulate in the blood of unborn generations?

SOME MORTAL AND VITAL STATISTICS OF PARIS.

The population of France increases very slowly. The births amongst the French do not exceed the deaths; and the trifling increase of population seems to be due partly to excess of immigration over emigration, partly to excess of births over deaths in the foreign population domiciled in France. Although the population of France is nearly stationary, that of Paris is steadily increasing, though not so rapidly as that of most of the great European capitals. In 1896 it amounted to 2,514,995, and in 1897 to 2,529,405. The increase of population appears to be due to a decrease in the death-rate rather than to an increase in the birth-rate. In 1888 there were 59,373 births and 50,825 deaths recorded; whilst in 1897, although the population had considerably increased, the births were fewer (59,353), whilst the deaths were 46,804.

The deaths from zymotic diseases show a marked decline, no doubt in great part owing to the many sanitary reforms carried out of late years in the gay capital. The following were the numbers of deaths from zymotic maladies in and since 1888:—1888, 4,029; 1889, 4,531; 1890, 4,341; 1891, 3,245; 1892, 3,541; 1893, 3,225; 1894, 3,196; 1895, 1,863; 1896, 1,905; 1897, 1,681.

Phtisis shows no sign of decrease, the deaths from this disease averaging about 10,000 per annum, or nearly one-fourth of the deaths from all causes.

In 1896 the death rate was 19·32 per 1,000 persons living, and in 1897 18·5 per 1,000. Paris, if it progresses at this rate, will rival London in salubrity.

In 1897 the minimal temperature of Paris was 19·8° F. (on the 26th December), and the maximal 103·8° F. (on the 25th June).

THE GROWTH OF BACILLI IN SOILS.

The influence of soils on the distribution of enteric fever has frequently been treated of in this journal. That the disease, so far as Dublin is concerned, is more prevalent on gravels than on clay has been clearly established. In former reports the opinion has been expressed that emanations from the soil may, as well as infected water, milk, &c., or sewer gases, convey the infective matter of enteric fever. There is abundant proof that the typhoid bacilli can exist for a long time in soil, but whether or not they retain their pathological activity in the soil has not been made the subject of much investigation. In the supplement to the Twenty-sixth Annual Report of the (English) Local Government Board (for 1896-97), there is an interesting report on the growth of typhoid bacilli. The report, though stated to be a preliminary one, is full of interest, and we are indebted for it to that able investigator, Dr. Sidney Martin, F.R.S. The typhoid microbe is both aërobic and anaërobic; it can even be developed in an atmosphere of carbonic acid. Although like other bacilli it prefers a temperature of 37° C., it can stand extremes of temperature, and can survive at temperatures lower even than 0° C. It grows both in acid and alkaline media, and doses of carbolic acid, fatal to most kinds of micro-organisms, do not destroy the typhoid bacillus. The practice of adding a little carbolic acid to the dejections of enteric patients is wholly useless—enormous doses must be used to destroy the microbe.

Dr. Martin sterilised a soil containing a large quantity of organic matter. It was treated with distilled water until it became moist. The soil was then inoculated with a broth culture of the bacillus of twenty-four hours' growth. The infective matter was placed in the centre of the soil, which was contained in Erlenmeyer flasks. At the expiration of sixteen days the soil was examined for the presence of the bacillus, and with the following intensely interesting results:—The bacilli were found to be very numerous and active, not only in the soil in the centre of the flask, but at the sides of the flask, 1½ inches from the centre. They had multiplied and had ramified throughout the mass of soil. It should be mentioned that the percentage of

water in the soil was 35·1, and that there was no liquid on the surface of the soil. The organisms were, therefore, not carried through the soil by water.

Another soil of different origin, but containing much organic matter, was similarly treated. The microbes were found to be numerous and active in the central part, but they had not spread towards the sides of the flask. This soil contained 40·3 per cent. of water.

The next experiments were made with an agar culture of four days old, and a soil containing 38·7 per cent. of water. In sixteen days long and short active rods were obtained from the centre and one side of the flask, but in the two other sides no bacilli were detected. It is possible, however, that the negative results were due to pitting of the surface by the water added to it.

In a second experiment with the agar cultivation, in another soil, the bacilli were found in the centre and surface of the soil. Why did this experiment give somewhat different results from the other with the agar culture? Probably owing to difference in the composition of the soils.

Further experiments proved that the bacilli introduced into soils were alive after 79 days, and in 105 days they had pervaded the whole of the soil. Experiments were made to ascertain whether or not the bacilli retained after 105 days their vegetative and cultural peculiarities. The results proved that the soil was capable of sustaining perfectly the multiplication of the bacilli as if it were a culture medium.

Experiments with *Bacillus coli communis* gave similar results.

Most interesting of all were the experiments with infected soils. Kept at the temperature of the air, at the end of 63 days the bacilli were not only alive, but had begun to pervade the soil. The bacilli multiply and diffuse more rapidly at high temperatures, as might be expected; but it is clear that the soil at its ordinary temperature can, if it contains organic matter, sustain the life and increase the growth of typhoid bacilli.

The final experiments of Dr. Martin were made with virgin soil, at 37° C. The results were negative, both as regards cultivation of the typhoid bacillus and the *Bacillus coli com-*

munis. A repetition of this experiment is required before we can safely assume that these bacilli cannot live in a virgin soil. There still remains to be determined the question—How long can these microbes survive in contaminated soils? It is of much more practical interest to have the experiments conducted at ordinary temperatures than at 37° C., which does not occur in the soils of these countries. At present it is established that, in a soil containing offensive organic matter, typhoid bacilli can exist and multiply during 105 days. It would seem likely that their existence for a much longer period is determined only by the quantity of pabulum for them available in the soil. We await the publication of Dr. Martin's further researches with much interest.

THE BEHAVIOUR OF THE TYPHOID BACILLUS IN MILK.

In the Supplement to the Report of the Local Government Board already referred to, Dr. Edmund Cautley gives the results of his experiments as regards the behaviour of typhoid bacilli when introduced into milk. He finds that the microbes, if introduced into milk, will exist alive in it for several days. They do not, however, multiply, but rather decrease. The souring of the milk does not kill them, for we know that they can exist in the presence of much stronger acids than lactic or butyric. How long they can live in milk has not been determined, but the time seems to be influenced by the character and number of the other micro-organisms in milk. Few liquids seem to be so well provided with organisms as milk. In 1 centimetre of a sample no fewer than 8,119,200 have been detected.

As the typhoid bacillus can exist in very sour milk, there is reason to believe that it may survive in the casein of milk when it is converted into cheese. Dr. Lydia Rabonowitsch sought for the bacillus tuberculosis in 80 specimens of butter with negative results. She points out that in the investigation of milk products there is danger in confounding acid resisting bacteria with the tubercle bacillus, as she thinks has been the case.—*Zeitschrift für Hygiene.* Vol. XXVI., No. 1, 1898.

MICROBE OF WOOPING-COUGH.

Czaplewski and Hensel have examined the sputa in thirty cases of whooping-cough, during an epidemic of that disease

in Königsberg. In every instance they detected in the solid constituents of the sputa a peculiar micro-organism. They were able to isolate it, and put it under "cultivation." The organism is a short bacillus with round edges. It resembled the bacillus associated with influenza, but it differs from the latter in being cultivatable in ordinary media. Stained with aniline dyes, it was immobile. Its size varied according to the stage of the disease. Few were found in the earlier stages of the disease, but, later on, they were largely developed, and appeared to be more numerous when the malady was severe.

The inoculation of animals with the "culture of the bacillus gave negative results." Still the authors believe that this micro-organism is the exciting cause of whooping-cough, from the fact that it is always present in the expectoration of the patients. A coryza, accompanied by spasmodic cough, seized the authors whilst they were making their observations, but the attack did not last long.

The description of the bacillus accords with that of a microbe investigated by Burger, but it differs from the account of the depo-coccus described by Ritter, and from that of a bacillus discovered by Dr. Afanassieff, and which were associated with whooping-cough by those authorities.

Czaplewski and Hensel's investigations are described fully in the *Deutsche medicinische Wochenschrift*, No. 37, 1897.

DISINFECTION BY FORMALIN.

Some years ago chlorine was the almost universal agent employed in the disinfection of rooms which had been occupied by fever patients. It was, to a large extent, superseded by sulphur dioxide. This gas in its turn gave way to the system of spraying the atmosphere of the infected rooms and its walls and ceilings with solution of mercuric chloride, 1 part of the salt per 1,000 parts of water. Many authors contended that various kinds of pathogenic organisms were not killed by the doses of sulphur dioxide usually employed, and that nothing but prolonged exposure to air containing a very large percentage of sulphur dioxide would suffice to destroy the virulence of malignant micro-organisms. Quite recently the claims of sulphur dioxide as a germicide have

been revived, and the results of some recent investigations seem to show that its powers have been under-estimated.

One most recently employed disinfectant is *formalin*. This article is a 40 per cent. solution of formic aldehyde (CH_2O), a derivative of methyl alcohol or wood spirit. Dr. Henry Kenwood, Assistant Professor of Public Health, University College, London, read a paper on "Disinfection by Formic Aldehyde" at the recent Sanitary Congress at Leeds. He rather decries the spraying method, and speaks most favourably of the use of formalin. Rosenberg, Roux and Trillat, Bardet and Trillat, Kinyoun, Nicolle, Giornale, Herbert, Andersen, and many other bacteriologists and sanitarians have recently published the results of experiments with formalin, highly favourable as to its disinfecting power.

Dry formalin may be used instead of a solution. It may be procured in tablets of one gramme in weight. The tablets are vaporised by the heat of a specially constructed lamp applied to a vessel (autoclave), of which there are several varieties. For large spaces Trillat's autoclave is the best. For ordinary-sized rooms a smaller one, costing about ten shillings, is sufficient.

One great advantage of the use of formalin is, that it is not necessary to re-paper or re-whitewash the rooms after disinfection. The furniture need not be removed.

The apparatus used may be employed to produce the aldehyde from common wood spirit, by covering the spirit and causing it, mixed with atmospheric air, to pass over red hot platinum.

The tablets are, however, more convenient, and require a very simple apparatus. Dr. Kenwood considers that the evidence in favour of formic aldehyde justifies the following conclusions :—

"(1) That when the atmosphere is charged with less than 1 per cent. of the vapour, the disinfection of all surfaces is complete and rapid, and that this holds good under the ordinary conditions of temperature and moisture obtaining in living rooms.

"(2) That the vapours possess a certain and variable amount of penetrating power into loose fabrics, especially when these are dry. This penetration is largely due to the circumstance that when produced in a warm state the vapour is of a low specific gravity and mixes well with the air.

"[These facts have been proved by numerous experiments by different workers, in which the following objects were exposed:—The specific organisms of cholera, enteric fever, diphtheria, tetanus, tuberculosis; *B. coli communis*, *B. anthracis* with spores, Trichophyton spores, *Staph. pyogen. aureus*, phthisical sputum, dust, soil, &c.]

"(3) That the vapours do not affect the colours of textile materials, &c., or (with the exception of iron or steel) metallic surfaces.

"(4) That the room, and articles exposed, can be cleaned of the vapours readily by aeration, and the vapours are not so irritating but one can always enter the room and unseal at the first attempt (an advantage over SO_2 and Cl_2).

"(5) That the disinfecting properties of the aldehyde are greater than those of SO_2 or Cl_2 .

"(6) That there is no danger in entering the room, either from the aldehyde, or from the CO which is formed at the same time. This is proved from the fact that the men employed in the works and exposed to considerable quantities enjoy good health, and also from many experiments with animals in atmospheres heavily charged with the vapours generated as in room disinfection."

My own experiments with formalin as a disinfecting agent have given satisfactory results, and I am disposed to think this agent will soon supersede all others. Dr. Kenwood's results are very convincing, as will be seen by the following:—

"EXPERIMENT I.—After the due exposure the inoculated swabs and strips were returned to the laboratory as rapidly as possible, and were rubbed into fresh serum tubes which were incubated over night at 37° C . After nineteen hours, the following results were obtained:—

"1. From all the control swabs and strips, including those covered by the circular discs of holland, the diphtheria bacillus was found to have grown readily; some of the growths were practically pure, others were mixed with cocci, chiefly staphylococci.

"2. Of the test swabs exposed to formalin vapour, and the strips, including those covered by discs of holland, similarly exposed to formalin, not a single tube inoculated from the vaporised swabs and strips showed any diphtheria colonies, and only one strip gave rise to any culture at all—viz., a staphylococcus colony (verified by the microscope). This may have crept in after the formalin vapour had ceased to act, before the petri dish cover was replaced, or perhaps during the transfer of the strip, in the laboratory, from the petri dish to the fresh serum tube.

[N.B.—In this experiment Trillat's apparatus was employed in a room of 2,004 cubic feet capacity. The vapours of CH OH were allowed to escape into the room for forty minutes; after this an exposure of three hours was allowed. The subcultures were placed on the floor, on chairs, on the mantelpiece, and on brackets, one of which was fixed just below the ceiling. At the end of three hours the atmosphere had a strong odour of CH OH. Many coloured materials were exposed (including terra-cotta plush, pale peacock-blue silk, sage-green silk, French-grey face cloth, butchers'-blue cotton, electric-blue cotton, yellow and orange velveteen, dark green plushette, &c.), and control pieces were reserved for purposes of comparison. It was impossible to detect the slightest evidence of fading. Bronze images and gilded frames were quite unaffected.—H. K.]

“EXPERIMENT II.—Results after $20\frac{1}{2}$ hours' inoculation of fresh serum tubes at 37°C :—

“1. From cultivations made from the control swabs and strips of holland, the diphtheria bacilli were readily recovered in all cases.

“2. In the case of the test swabs, the single squares of holland, and the strips inoculated and covered with circular discs of holland, the serums remained sterile for days afterwards.

“[N.B.—In this experiment twenty-one paraform tablets (dry formalin), of an average weight of about a gramme, were employed to disinfect the room of 2,004 cubic feet, and the period of exposure was four hours. On unsealing the room the atmosphere had a strong odour of the aldehyde.—H. K.]

“EXPERIMENT III.—Results :—

“1. From the control swabs and strips of brown holland cultivations on serum were made, and the diphtheria bacillus was easily recovered from all the cultures.

“2. From the test swabs and strips of holland (both single strips and those covered by sterile discs of the same material) an attempt to make cultivations of diphtheria bacillus on serum failed in all cases.

“[N.B.—In this experiment the lamp which I had made for me was employed; $1\frac{1}{2}$ litre of methyl alcohol was used up and the room (2,004 cubic feet) sealed for four hours. At the end of four hours the atmosphere had a strong odour of the aldehyde.—H. K.]

“EXPERIMENT IV.—Results after inoculation of fresh serum tubes :—

“1. From cultures made from the control swabs and strips of holland the diphtheria bacilli were really obtainable in all cases.

“2. The serums inoculated with the test swabs showed colonies of

diphtheria in two out of three cases—one of the three remaining sterile.

"3. The serums inoculated with the test single strips of holland also showed colonies of diphtheria bacilli mixed with staphylococci in two out of three cases—one serum, however, remaining sterile.

"4. The serums inoculated with the three strips of holland which had been covered with circular discs of holland, curiously enough remained absolutely sterile after 72 hours' incubation at 37° C."

In conclusion, we should point out that Mr. Wolf Defries, in *Public Health* for March, 1898, whilst admitting the great power of formic aldehyde when applied to unprotected surfaces, believes that its power of penetration is not nearly so great as that of high-pressure steam. The steam appears to be the best agent for disinfection of clothing, &c., in close vessels, but it is inapplicable in the cases of room disinfection. He is by no means singular in favouring this system above all others.

THE HEALTH OF BOMBAY.

BRIGADE-SURGEON LIEUTENANT-COLONEL THOMAS STEPHENSON WEIR, I.M.S., Bombay, has sent us from the Health Office, Bombay, the following Table, showing the total mortality in that city in January and February, 1897 and 1898:—

Week ending	1897		Week ending	1898	
	Total Deaths	Increase or Decrease per cent.		Total Deaths	Increase or Decrease per cent.
January 5	1711	— 7·66	January 4	1061	+ 8·82
„ 12	1638	— 4·26	„ 11	1307	+ 23·18
„ 19	1753	+ 7·32	„ 18	1540	+ 17·82
„ 26	1721	— 2·10	„ 25	1726	+ 12·07
February 2	1645	— 4·41	February 1	1871	+ 8·40
„ 9	1911	+ 16·17	„ 8	2067	+ 10·47
„ 16	1728	— 9·57	„ 15	2195	+ 6·19
„ 23	1650	— 4·51	„ 22	1974	— 10·06
March 2	1484	— 10·06	March 1	2080	+ 5·36

PART IV. MEDICAL MISCELLANY.

Reports. Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—EDWARD H. BENNETT, M.D., F.R.C.S.I.

General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

SECTION OF OBSTETRICS.

President—F. W. KIDD, M.D.

Sectional Secretary—JOHN H. GLENN, M.D.

Friday, January 7, 1898.

The PRESIDENT in the Chair.

Specimens.

DR. ALFRED J. SMITH showed a large fibro-myoma with uterus and appendages removed by cœliotomy on December 14th, 1897, from an unmarried woman, aged thirty-six. The patient noticed for the past seven or eight years a lump in her abdomen, which increased in size during menstruation ; it caused little or no inconvenience up to two years ago when it suddenly got much larger and became painful to the touch. Menstruation ceased eighteen months ago.

Examination before Operation.—A large, solid mass the size of a seven months pregnant uterus filled the central portion of the abdominal cavity ; it was movable upwards and could touch ribs on right side ; it did not sink into the pelvis, as there was a clear margin about two fingers' width above the pelvis, which was quite clear on percussion.

Bimanual under Ether.—Cervix pointed downwards and forwards. Fundus, small posterior. Left ovary enlarged in front ; right low down. Sound passed 5 c.m. Traction on cervix with volsella demonstrated no connection with tumour.

Diagnosis.—From facts stated above the tumour did not appear to be uterine. Every possible variety of tumour was suggested as a probable solution of the difficulty.

Abdominal Section.—Extensive incision was made ; tumour was easily drawn out of abdomen, and in making tension on it to determine the pedicle, Dr. Smith was astonished to find ovaries and tubes coming out along with it. The pedicle was twisted loosely, it was quite translucent when untwisted, and contained no solid portion. A chain suture was introduced and tumour removed. On examining pelvis a solid mass occupying the position of the uterus was felt.

Specimen consists of a large fibro-myoma growing from the fundus of the uterus. The uterus consists of the fundus and supravaginal portion of cervix, with hypertrophied and elongated tubes and ovaries attached. An amputation had taken place sometime previously through the junction of the supravaginal portion of the cervix and the portio media. There was no accumulation of fluid in the uterine cavity, or any peritoneal adhesions. The case is interesting as demonstrating the difficulties of diagnosticating abdominal tumours, and to explain how the amputation took place. The twisting of the pedicle was certainly not sufficient. Recovery uneventful.

DR. SMITH also exhibited a large fibro-myoma of the uterus removed by cœliotomy. Recovery.

DR. R. D. PUREFOY.—(a) Myomatous uterus removed by cœliotomy ; (b) Sub-peritoneal myoma removed by cœliotomy.

The Action of the Vaginal Plug in Accidental Haemorrhage.

DR. HASTINGS TWEEDY read a paper on the action of the vaginal tampon in accidental haemorrhage. He contended that when this was properly applied it directly compressed the uterine arteries, acting on them as does a tourniquet. A well-fitting plug should, in the first instance, fix the cervix by completely surrounding it with pledges of moist cotton wool packed as tightly as possible, and should then fill the vagina to its utmost capacity, direct compression thereby being exercised on the uterine arteries. The obstruction to the circulation thus brought about causes moreover an accumulation of carbonic acid gas in the uterine muscles, which is a well-known and powerful stimulant to uterine contractions. He adduced arguments in favour of these theories founded on (1) observations made on the pregnant cadaver ; (2) the analogy of Doyen's hysterectomy, where a steady downward drag exerted on the cervix causes this operation to be bloodless ; and (3) results

obtained in practice—where, as in one instance, haemorrhage was arrested in spite of a large intravenous saline injection, and in a time too short to permit of any other explanation as to the plug's action.

DR. WINIFRED DICKSON said that accidental haemorrhage had always seemed to her to be the very worst complication in midwifery. Why did he (Dr. Tweedy) think it better not to use the speculum? She thought that the plug ought to be sterilised. Did he plug with balls of cotton wool, and did he attach strings to them in order to facilitate their removal?

DR. MACAN thought that accidental haemorrhage was amongst the most difficult of the accidents of parturition to treat. He could recall several cases where Dr. Tweedy's treatment might have been of service, if it was as serviceable as he (Dr. Tweedy) hoped it to be, but he (Dr. Macan) wanted proof of the statement that the uterine arteries are stopped by the process of plugging. As far as internal accidental haemorrhage goes, before total detachment of the placenta, his method stopped the uterine arteries, and his treatment in these cases was most favourable. Plugging might be carried out as long as the membranes were perfect, but, after their rupture, there was no means of increasing the intra-uterine tension. So far, he (Dr. Macan) preferred to introduce a Barnes's bag in preference to plugging the vagina; also, in placenta praevia, where the bleeding surfaces were quite close, he preferred to use a Barnes's bag. He did not understand how Dr. Tweedy's method could twist the arteries very much, nor how the accumulation of carbonic dioxide could take place.

DR. ALFRED J. SMITH said that he did not understand how a vaginal plug would so act as to compress the uterine arteries. Dr. Tweedy wanted them, he thought, to believe that his method was different from the method adopted in hospitals. To his mind the great difficulty in dealing with such cases was not in cases where labour had started at all, but in cases of concealed haemorrhage, where the patient was collapsed and almost pulseless, with no labour pains, cervix quite hard, and where there was a pathological condition of the uterine muscular fibres. He thought that the best treatment in grave cases would be to ligature the uterine arteries direct, and the uterus could be then removed. Death from accidental haemorrhage generally occurred after delivery, up to two hours after parturition.

DR. DOYLE considered that unless an artery was atheromatous very little pressure would stop it.

DR. R. D. PUREFOY said that the practice in the Rotunda

Hospital in such cases was to plug, and that accumulating evidence was distinctly in favour of continuing the practice. He thought that such subsidiary means as the use of a firm binder should not be forgotten, and also the stimulation of the uterine contractions by the careful manipulations of both hands.

DR. KNOTT also spoke,

DR. TWEEDY, replying, said in answer to Dr. Dickson that he always used sterilised cotton wool. A much greater quantity of wool could be pressed into the vagina without a speculum. He did not employ strings, as by so doing he did not see how so tight a plug could be made with strings as without, and there was no difficulty in removing the pieces of cotton wool. Dr. Macan had said that he (Dr. Tweedy) had not adduced any evidence to show that the circulation was impeded. He (Dr. Tweedy) said that in one of the cases which he had been able to study he was easily able to bend the whole broad ligament by pressing in the lateral fornices and pulling down the cervix, and was able to tighten the lower portion of the broad ligament against the upper portion. A branch of the uterine artery ran to the cervix before the uterine artery entered the uterus, and if the cervix were pulled upon, and a plug placed outside the branch, the uterine artery must receive a sharp bend at the plug.

The Section then adjourned.

Friday, February 11, 1898.

The PRESIDENT in the Chair.

Exhibits.

DR. ALFRED SMITH exhibited a pregnant uterus, showing foetus *in situ*, with large fibromyoma, removed by Porro's operation.

DR. KIDD exhibited a papillomatous ovarian cystoma, removed by abdominal section.

DR. JELLETT exhibited a subserous myoma uteri, removed by myomectomy.

Vaginal Colpotomy; its Advantages and Limitations.

DR. T. HENRY WILSON read a paper on this subject, and confined his remarks to the treatment of pelvic tumours and adhesions, discussed the advantages of both anterior and posterior colpotomy, and, contrasting them, claimed that both are valuable, but each individual case must be judged on its merits.

Having described the method of anterior colpotomy, he pointed out the facility with which the adnexa may be drawn down and examined, adhesions of the ovaries separated, and tubes and ovaries removed, or, if found healthy, replaced. Small subperitoneal myomata, if pedunculated, may be ligated, or if sessile, incised, removed, and the peritoneum closed over. Small ovarian and parovarian cystomata may likewise be easily treated, or if too large the contents may first be evacuated, the pedicle tied, and the cyst removed.

He expressed his disapproval of the operation of vaginal fixation for retroversion, except in cases past the child-bearing period, or for the control of haemorrhage impossible by other means. He then dwelt specially on the treatment of pyosalpinx by this method, and laid stress upon the usual site of rupture of the pus sac when separating adhesions—namely, the posterior surface, which is the most unfavourable situation in operating by celiotomy, but favourable when by vaginal colpotomy. He strongly advocated removal of the uterus in severe cases of pyosalpinx with dense adhesions of long standing.

Having described the operation of posterior colpotomy, he discussed the question of pelvic haematocele and pelvic abscess, pointing out the great advantage this method presented for efficient drainage. Densely adherent ovaries deeply situated in Douglas' pouch he regarded as suitable for the posterior operation, but he deprecated treatment of ruptured tubal pregnancy by the vaginal method. Two difficulties in colpotomy were emphasised—viz., rendering the vagina aseptic and reaching the peritoneum. He also drew attention to the ever-present danger of wounding the ureters. He compared the separation of adhesions by Schultze's method and vaginal colpotomy with the danger of concealed haemorrhage in the former, and expressed his preference for the latter method as being more under control.

He insisted strongly that no one should undertake vaginal colpotomy who was not prepared to open the abdomen if found necessary, as there was always present the danger of uncontrollable haemorrhage, and the possibility of being unable to complete the operation from below. He then mentioned certain cases not suited to this operation, as large dermoid tumours, deformity of the pelvis, rendering the operation very difficult; large ovarian tumours, and advanced ectopic gestation. He claimed as advantages the absence of risk of ventral hernia, less shock, absence of the distressing thirst so common after even exploratory abdominal incision, and more speedy convalescence. In summing

up he thought the question to ask oneself was—Can this be done by the vagina?

The PRESIDENT said that in some cases it is absolutely impossible to diagnosticate whether one is dealing with a single or a double salpingitis. As regards the removal of small subserous fibromata when the uterus is taken down, he said it was his experience to meet with a lot of these which never did the patient the slightest harm. It has been claimed that intestinal adhesions can be dealt with easily by colpotomy, and that the intestines never come into view; but there were a good many cases of intestinal adhesions when, if one were unfortunate enough in bringing them down so as to injure the intestines or the vermiform appendix, such cases would likely have to be finished by the abdominal method.

DR. A. J. SMITH did not think it the correct operation for ruptured tubal pregnancy, as a large blood-clot sometimes extended up to above the umbilicus, and he thought that this clot could not be as efficiently removed as by the abdominal method. He thought that for prolapsed ovaries and catarrhal tubes it was a matter of slight difference whether the abdomen was opened from below or above.

DR. HENRY JELLETT thought that enough importance was not given to vaginal coeliotomy as a means of diagnosis pure and simple. In certain cases of dysmenorrhœa, where it is ovarian, he thought it was justifiable to examine the ovaries if any sign of pathological condition could be obtained by a bimanual examination.

DR. SMYLY—When posterior or anterior colpotomy should be performed depended upon the circumstances of the case, whether the uterus was ante-verted or retro-verted, and where the pathological condition was situate. He did not approve of Dührssen's method of anterior colpotomy, but of Mackenrodt's. As regards vaginal fixation he did not altogether agree with Dr. Wilson; he did not think it a good method for ruptured tubal pregnancy on account of the difficulty in knowing when all the clots were cleared away. He had performed the operation for ovarian tumour for pyosalpinx in several cases, and for ruptured tubal pregnancy. With regard to pyosalpinx he said that the uterus is really infected before the tubes, and unless the uterus is removed the disease is not cured.

DR. R. D. PUREFOY thought that vaginal colpotomy was very suitable for small movable tumours, whatever their origin. He was of opinion that it was not as good as laparotomy for most cases of pyosalpinx and tubal pregnancy. Sometimes the operation was

very troublesome. He was quite unable to accept the proposition that in every case of pyosalpinx the uterus should be removed.

DR. WINIFRED DICKSON thought it a great advantage not to have an abdominal incision.

DR. WILSON, in reply to the President, said that he was far from saying that every time a fibroma or myoma was diagnosed a colpotomy should be done. It was not always the size of a myoma which caused the symptoms. The vermiform appendix is often seen in operations by the vagina, and may be taken out and put back without danger. Adhesions of the intestines to the uterus, ovaries, and tubes could be easily separated. He (Dr. Wilson) thought Dührssen's method very bad, and Mackenrodt's nearly as bad. If the fundus was not brought through the peritoneum most probably the operation would be a total failure and the fundus would subsequently retrovert. He did not think with Dr. Smyly that an abdominal section should be done to separate adhesions preparatory to removal of double pyosalpinx by the vagina. He believed that it was in separating the tubes from their adhesions that they burst. With reference to prolapse operations he thought that perhaps extirpation was the best method in elderly women. For younger women he thought that an anterior and posterior colporrhaphy and a properly fitting pessary was best.

The Section then adjourned.

ECZEMA FROM TOOTH-WASHES.

PROFESSOR NEISSE, of Breslau, recently reported two cases of obstinate facial and labial eczema in children, with which, after months, he had been able to accomplish nothing by all manner of treatment. In both cases the eczema disappeared, practically without treatment, on the discontinuance of a patent mouth-wash called Odol, which is very popular in Germany. In two other cases the use of tooth-washes containing small portions of the essential oils of peppermint and cloves seemed to give rise to corresponding intractable eczema. As Odol contains small quantities of these oils for flavouring purposes, he considers that this is probably the irritant element, and warns the profession against allowing the use of such flavoured tooth-washes in practice.—*The Philadelphia Medical Journal*, March 12, 1898.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four weeks ending Saturday, February 26, 1898.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Feb. 5	Feb. 12	Feb. 19	Feb. 26		Feb. 5	Feb. 12	Feb. 19	Feb. 26
23 Town Districts	26·3	30·2	26·7	29·7	Limerick -	15·4	15·4	15·4	23·9
Armagh -	35·6	42·8	7·1	7·1	Lisburn -	29·8	21·3	12·8	38·3
Ballymena	28·2	28·2	22·5	5·6	Londonderry	17·3	36·1	31·4	34·6
Belfast -	26·7	32·2	29·3	33·4	Lurgan -	9·1	36·5	27·4	18·2
Carrickfergus	46·7	0·0	11·7	11·7	Newry -	20·1	8·1	36·2	28·2
Clonmel -	4·9	34·1	29·2	14·6	Newtownards	28·3	11·3	51·0	17·0
Cork -	15·9	21·5	15·9	28·4	Portadown	6·2	24·7	30·9	37·1
Drogheda -	41·8	38·0	45·6	41·8	Queenstown	17·2	17·2	17·2	5·7
Dublin -	32·3	33·1	27·9	30·3	Sligo -	20·3	30·5	45·7	30·5
Dundalk -	25·1	8·4	8·4	12·6	Tralee -	16·8	16·8	11·2	33·6
Galway -	18·9	41·5	37·8	37·8	Waterford	23·9	33·8	15·9	23·9
Kilkenny -	9·4	47·2	28·3	0·0	Wexford -	22·6	36·1	31·6	49·7

In the week ending Saturday, February 5, 1898, the mortality in thirty-three large English towns, including London (in which the rate was 21·5), was equal to an average annual death-rate of 19·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·0 per 1,000. In Glasgow the rate was 18·7. In Edinburgh it was 17·9.

The average annual death-rate represented by the deaths registered during the week in the twenty-three principal town districts of Ireland was 26·3 per 1,000 of their aggregate population, which for the purposes of this return, is estimated at 1,007,798.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in seventeen of the districts to 8·5 in Lisburn—the 7 deaths from all causes registered in that district comprising 1 from scarlatina and 1 from diarrhoea. Among the 156 deaths from all causes registered in Belfast are 3 from measles, 1 from whooping-cough, 1 from diphtheria, 12 from enteric fever, and 1 from diarrhoea. The 23 deaths in Cork comprise 2 from diarrhoea.

In the Dublin Registration District the registered births amounted to 212—105 boys and 107 girls; and the registered deaths to 220—119 males and 101 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 32·8 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 32·3 per 1,000. During the first five weeks of the current year the death-rate averaged 31·5, and was 3·2 under the mean rate in the corresponding period of the ten years 1888–1897.

Twenty-nine deaths from zymotic diseases were registered, being 3 over the average for the corresponding week of the last ten years, but equal to the number for the previous week. They comprise 2 from scarlet fever (scarlatina), 14 from influenza and its complications, 3 from whooping-cough, 7 from enteric fever, and 2 from diarrhoea.

The number of cases of scarlatina admitted to hospital was 28, being 2 under the admissions in each of the two weeks preceding. Twenty scarlatina patients were discharged, and 188 remained under treatment on Saturday, being 8 over the number in hospital on that day week. This number is exclusive of 23 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Twenty-eight cases of enteric fever were admitted to hospital against 26 in the preceding week and 19 in the week ended January 22. Twenty-four patients were discharged, 3 died, and 129 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

Diseases of the respiratory system caused 47 deaths, being 4

over the number of deaths from these diseases during the preceding week, but 8 under the average for the fifth week of the last ten years. The 47 deaths consist of 32 from bronchitis and 15 from pneumonia.

In the week ending Saturday, February 12, the mortality in thirty-three large English towns, including London (in which the rate was 22.2), was equal to an average annual death-rate of 20.7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20.1 per 1,000. In Glasgow the rate was 22.4, and in Edinburgh it was 17.9.

The average annual death-rate in the twenty-three principal town districts of Ireland was 30.2 per 1,000 of their aggregate population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2.6 per 1,000, the rates varying from 0.0 in fourteen of the districts to 14.3 in Armagh—the 6 deaths from all causes registered in that district comprising 1 from diphtheria and 1 from enteric fever. Among the 188 deaths from all causes registered in Belfast are 1 from scarlatina, 5 from whooping-cough, 4 from diphtheria, 11 from enteric fever, and 2 from diarrhoea. The 23 deaths in Londonderry comprise 4 from whooping-cough.

In the Dublin Registration District the registered births amounted to 233—115 boys and 118 girls; and the registered deaths to 234—109 males and 125 females.

The deaths, which are 31 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 34.9 in every 1,000 of the population. Omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the district, the rate was 33.1 per 1,000. During the first six weeks of the current year the death-rate averaged 32.1, and was 1.8 under the mean rate in the corresponding period of the ten years 1888-1897.

The number of deaths from zymotic diseases registered was 29, being 5 in excess of the average for the corresponding week of the last ten years, but equal to the number for the previous week. The 29 deaths comprise 3 from scarlet fever (scarlatina), 9 from influenza and its complications, 2 from whooping-cough, 2 from diphtheria, 7 from enteric fever, 2 from diarrhoea, 1 from dysentery, and 1 from erysipelas.

Twenty-eight cases of scarlatina were admitted to hospital.

Thirty-three scarlatina patients were discharged, 2 died, and 181 remained under treatment on Saturday, being 7 under the number in hospital on that day week. This number is exclusive of 26 convalescents at Beneavin, Glasnevin.

The number of cases of enteric fever admitted to hospital was 24, being 4 under the admissions in the preceding week. Twenty two patients were discharged, 5 died, and 126 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Deaths from the diseases of the respiratory system, which had risen from 43 in the week ended January 29 to 47 in the following week, further rose to 66, or 14 over the average for the corresponding week of the last ten years. The 66 deaths consist of 48 from bronchitis, 16 from pneumonia, and 2 from croup.

In the week ending Saturday, February 19, the mortality in thirty-three large English towns, including London (in which the rate was 21·5), was equal to an average annual death-rate of 20·4 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·4 per 1,000. In Glasgow the rate was 21·7, and in Edinburgh it was 18·8.

The average annual death-rate represented by the deaths registered in the twenty-three principal town districts of Ireland was 26·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·4 per 1,000, the rates varying from 0·0 in fourteen of the districts to 8·1 in Newry—the 9 deaths from all causes registered in that district comprising 2 from enteric fever. Among the 171 deaths from all causes registered in Belfast are 1 from diphtheria, 1 from simple continued fever, 4 from enteric fever, and 2 from diarrhoea. The 20 deaths in Londonderry comprise 1 from whooping-cough and 1 from diarrhoea. "The Registrar for Wexford District remarks—'Three deaths occurred from influenza.'"

In the Dublin Registration District the registered births amounted to 234—124 boys and 110 girls; and the registered deaths to 191—83 males and 108 females.

The deaths, which are 25 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·5 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 27·9 per 1,000.

During the first seven weeks of the current year the death-rate averaged 31·6, and was 2·1 under the mean rate in the corresponding period of the ten years 1888–1897.

The number of deaths from zymotic diseases registered was 26, being 1 under the average for the corresponding week of the last ten years, and 3 under the number for the previous week. The 26 deaths comprise 2 from scarlet fever (*scarlatina*), 11 from influenza and its complications, 2 from whooping-cough, 1 from diphtheria, 4 from enteric fever, 1 (in the Richmond District Lunatic Asylum) from beri-beri, 2 from diarrhoea, and 1 from erysipelas.

The number of cases of *scarlatina* admitted to hospital fell to 22. Thirty-seven *scarlatina* patients were discharged, and 166 remained under treatment on Saturday, being 15 under the number in hospital at the close of the preceding week. This number does not include 27 convalescents at Beneavin, Glasnevin.

The admissions of cases of enteric fever were 16 only, against 24 in the preceding week and 28 in the week ended February 5. Twenty-five patients were discharged, 4 died, and 113 remained under treatment on Saturday, being 13 under the number in hospital on that day week.

Deaths from diseases of the respiratory system, which had risen to 66 in the previous week, fell to 41, or 12 under the average for the corresponding week of the last ten years. The 41 deaths comprise 30 from bronchitis and 9 from pneumonia.

In the week ending Saturday, February 26, the mortality in thirty-three large English towns, including London (in which the rate was 21·9), was equal to an average annual death-rate of 20·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·5 per 1,000. In Glasgow the rate was 20·7, and in Edinburgh it was 19·2.

The average annual death-rate in the twenty-three principal town districts of Ireland was 29·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·3 per 1,000, the rates varying from 0·0 in seventeen of the districts to 4·7 in Londonderry—the 22 deaths from all causes registered in that district comprising 3 from whooping-cough. Among the 195 deaths from all causes registered in Belfast are 1 from typhus, 3 from whooping-cough, 5 from diphtheria, 2 from enteric fever, and 1 from diarrhoea.

In the Dublin Registration District the registered births amounted to 199—107 boys and 92 girls; and the registered deaths to 209—95 males and 114 females.

The deaths, which are 1 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 31·2 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 30·3 per 1,000. During the first eight weeks of the current year the death-rate averaged 31·5, and was 1·9 under the mean rate in the corresponding period of the ten years 1888-1897.

Twenty-seven deaths from zymotic diseases were registered, being 1 over the number for the preceding week, and 4 over the average for the 8th week of the last ten years. They comprise 13 from influenza and its complications, 4 from diphtheria, 4 from enteric fever, and 1 from diarrhoea.

There has been a further decline in the number of cases of scarlatina admitted to hospital, the admissions numbering 13 only. Twenty-five scarlatina patients were discharged, 1 died, and 153 remained under treatment on Saturday, being 13 under the number in hospital at the close of the preceding week. There were in addition 23 convalescents at Bcneavin, Glasnevin.

The decline in the weekly number of cases of enteric fever admitted to hospital, noted in the returns for the two preceding weeks, has not continued, 32 cases having been admitted against 16 in the preceding week, 24 in the week ended February 12, and 28 in that ended February 5. Seventeen patients were discharged, 4 died, and 124 remained under treatment on Saturday, being 11 over the number in hospital at the close of the preceding week.

The number of deaths from diseases of the respiratory system registered was 51, being 10 over the number in the preceding week, but 6 under the average for the 8th week of the last ten years. The 51 deaths comprise 39 from bronchitis, 8 from pneumonia, and 2 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of February, 1898.

Mean Height of Barometer, -	-	29·926 inches.
Maximal Height of Barometer (11th, 9 p.m.), -	30·289	„
Minimal Height of Barometer (21st, 7 15 a.m.),	29·070	„
Mean Dry-bulb Temperature,	-	41·3°
Mean Wet-bulb Temperature,	-	39·0°.
Mean Dew-point Temperature,	-	36·0°.
Mean Elastic Force ('Tension) of Aqueous Vapour,	.214	inch.
Mean Humidity, -	-	81·6 per cent.
Highest Temperature in Shade (on 1st),	-	59·0°.
Lowest Temperature in Shade (on 24th),	-	28·1°.
Lowest Temperature on Grass (Radiation) (on 23rd),	-	27·0°.
Mean Amount of Cloud,	-	50·4 per cent.
Rainfall (on 18 days),	-	1·743 inches.
Greatest Daily Rainfall (on 17th),	-	.576 inch.
General Directions of Wind,	-	W., N.W.

Remarks.

Of average mean temperature, this month was no less than 5° colder than January. It was a rainy month, for there were only ten days on which there was no registrable rainfall; but the downpours were not heavy, except on the 17th, when more than half an inch was recorded. The prevailing winds were W. and N.W., and the force of the wind was often considerable. On the whole, the month was a fairly average February.

In Dublin the mean temperature (42·9°) was 0·1° above the average (42·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 41·3°. In the thirty-three years ending with 1897, February was coldest in 1895 (M.T.=34·2°), and warmest in 1869 (M. T.=46·7°). In 1897 the M. T. was as high as 46·0°.

The mean height of the barometer was 29·926 inches, or 0·071 inch above the average value for February—namely, 29·855 inches. The mercury rose to 30·289 inches at 9 p.m. of the 11th, and fell to 29·070 inches at 7 15 a.m. of the 21st. The observed range of atmospheric pressure was, therefore, 1·219 inches.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 41·3°, or 6·1° below the value for January, 1898. Using the formula, *Mean Temp.* =

Min. + (max. — min. × .50), the M. T. is 42.9° , compared with a twenty-five (1865–1889) years' average of 42.8° . On the 1st the thermometer in the screen rose to 59.0° —wind, S.W.; on the 24th the temperature fell to 28.1° —wind, W. The minimum on the grass was 27.0° , on the 23rd—wind, N.W.

The rainfall was 1.743 inches, distributed over 18 days. The average rainfall for February in the twenty-five years, 1865–89, inclusive, was 2.150 inches, and the average number of rainy days was 17.2. The rainfall, therefore, was below, while the rainy days were above, the average. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879 also 3.706 inches fell on 23 days. On the other hand, in 1891, only .042 inch was measured on but 2 days. The rainfall in 1891 was much the smallest recorded in February for very many years. The record is probably unparalleled in Dublin—.042 inch on 2 days.

The atmosphere was foggy on 3 days—the 17th, 23rd, and 24th. The amount of cloud—50.4 per cent.—was much below the average—66 per cent. High winds were noted on 18 days, and reached the force of a gale on the 1st, 2nd, 4th, 12th, and 15th. A solar halo was seen on the 5th; lunar halos were seen on the 4th and 6th.

The temperature reached or exceeded 50° in the screen on 11 days, and it fell below 32° on 7 nights, compared with as many as 18 nights in 1895, and only 1 night in 1896. The minima on the grass were 32° , or less, on 10 nights, compared with every night in 1895, 10 nights in 1896, and 4 nights in 1897. The thermometer once failed—on the 21st—to rise to 40° in the screen.

The weather fell into a very changeable state during the period ended Saturday, the 5th. At 8 a.m. of Sunday, January 30, the barometer ranged from 30.80 inches at Lyons to 28.85 inches at Bodö, in the N.W. of Norway. Hence strong S.W. or W. winds or gales were prevalent and temperature was extremely high. The reduction of atmospheric pressure in the N. culminated on Wednesday morning when the barometer was down to 28.57 inches in the Shetlands. Strong W. to N.W. gales were felt on the British and Irish coasts. With the veering of the wind to N.W. temperature gave way briskly. The depressions also began to travel southeastwards across Scandinavia and the North Sea, so that by the end of the week winter seemed fully established over North-Western Europe. On Friday snow and sleet fell in Great Britain, and at night there was sharp frost in many places. A very perfect lunar halo was seen on Friday evening. In Dublin the barometer ranged between 30.128 inches at 9 a.m. of Tuesday (wind, S.W.) and

29.461 inches at 9 a.m. of Friday (wind, N.W.). On Tuesday the screened thermometers rose to 59.9° , on Saturday they fell to 31.1° . The rainfall was .408 inch on 5 days, .213 inch being measured on Thursday. The prevailing winds were W. and N.W. Sleet and hail fell on Wednesday, the 2nd.

While changeable, the weather of the week ended Saturday, the 12th, was in most respects favourable. The first two days were cold, with strong W.N.W. winds and showers of sleetly rain and hail at times. At this time the centre of a depression of some depth (29.20 inches) lay between Scotland and Norway, drawing strong, cold N.W. winds in from the Atlantic. The next three days were chiefly fine and mild, with S.W. winds on Wednesday and Thursday. On the night of the last-named day a fresh gale from the southwestward was felt in the N.W. of Ireland and also in the E. of Scotland. The wind was gusty on nearly all coasts. There was not much rain, except at Belmullet in Mayo, and Stornoway in the Hebrides. In Ireland the wind veered temporarily to W.N.W. on Friday, and a beautiful day was enjoyed. At night a fresh backing of the wind to S.W. in Ireland ushered in a new S.W. system, with squalls and a good deal of cloud. Saturday was a dry, searching, squally day. Rain fell in the evening. For the first time this winter severe and continuous cold held in Sweden and Lapland. At Haparanda, on the Gulf of Bothnia, the 8 a.m. temperatures were -13° , -8° , -24° , -22° , -28° , -11° , and $+8^{\circ}$ respectively. In Dublin the mean height of the barometer was 30.042 inches, pressure varying from 29.762 inches at 9 a.m. of Sunday (wind, W. by N.) to 30.289 inches at 9 p.m. of Friday (wind, W.). The mean temperature was 45.1° . The mean dry bulb reading at 9 a.m. and 9 p.m. was 43.2° . The screened thermometers fell to 35.9° on Monday, and rose to 53.7° on Thursday. Rain fell on three days to the amount of .206 inch, .089 inch being measured on Sunday. The prevailing winds were W.N.W. and S.W.

Changeable, but seasonable, weather prevailed during the week ended Saturday, the 19th. An area of high barometer (anti-cyclone) was generally found lying over the Bay of Biscay, France, and the Peninsula; while (as in past weeks) cyclonic conditions ruled in the British Islands and Scandinavia. Hence came a prevalence of strong and squally westerly winds, with open, showery, or at times rainy weather. At 8 a.m. of Wednesday the barometer read only 28.75 inches at Christiansund, on the west coast of Norway, but stood as high as 30.53 inches at Lyons. Strong westerly gales were felt on Tuesday afternoon over Scotland and the North

of Ireland, and these were followed by equally strong north-westerly gales on Wednesday forenoon. As the deep depression referred to travelled away to the eastward the weather improved and the wind moderated. On Thursday afternoon, however, the distribution of pressure became complex, owing to the formation of secondary depressions over the British area. One of these caused an easterly breeze and heavy rainfall in the Dublin district on Thursday night and Friday forenoon. The weather then cleared temporarily, and became cold, only to fall into an unsettled state once more on Saturday afternoon and during the ensuing night. In Dublin the mean height of the barometer was 30.038 inches, pressure varying between 30.267 inches at 9 p.m. of Wednesday (wind, W. by N.) and 29.610 inches at 9 p.m. of Saturday (wind, W.N.W.). The mean temperature was 44.7°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44.0°. On Tuesday the screened thermometers rose to 55.8°; on Saturday they fell to 32.0°. The rainfall was .717 inch on 4 days, .576 inch being measured on Thursday. Westerly winds again predominated.

The week ended Saturday, the 26th, was the coldest week of the present winter. In Dublin frost occurred under cover (in the thermometer screen) on five nights, and on the grass nightly. The cold weather of the earlier part of the period was brought about by the passage southwards across Western Europe of a deep atmospheric depression between Sunday and Thursday. At 8 a.m. of Sunday the centre of this system was a little to the eastward of the Shetland Isles, and the barometer read only 28.76 inches at Sumburgh Head. All that day the barometer fell in England and Ireland as the system moved southwards, and cold W. winds, with showers of hail, sleet, and snow became general. By 8 a.m. of Monday the centre had reached St. George's Channel. The depression had begun to fill up, for the lowest pressure was now 29 inches (at Roche's Point, Cork). The centre lay over Brittany on Tuesday morning, had reached Bordeaux on Wednesday morning, and the Riviera on Tuesday morning. Up to this time very cold weather held in the British Isles, the snow-storm on Monday and Tuesday being particularly severe over the S.W. of England. On Friday a new depression edged in from the Atlantic, moving northeastwards and spreading eastwards. It caused high temperature for a short time, followed by heavy rain. This was, in turn, succeeded by clear and cold weather. In Dublin the mean height of the barometer was 29.738 inches, the observed range being from 29.070 inches at 7.15 a.m. of Monday (wind, E.) to 30.171 inches at 9 a.m. of Thursday (wind, W.).

The mean temperature was 38.2° . The mean dry bulb temperature at 9 a.m. and 9 p.m. was 35.9° . On Thursday the screened thermometers sank to 28.1° , on Friday they rose to 51.0° . Rain fell on five days to the amount of .334 inch, .201 inch being measured on Friday. The prevailing wind was N.W. Snow or hail fell on each of the first three days.

The last two days were changeable and rather cold, with westerly winds.

In Dublin the rainfall up to February 28th, 1898, amounted to 3.529 inches on 32 days, compared with 4.089 inches on 33 days in 1897, only 1.588 inches on 24 days in 1896, 6.336 inches on 33 days in 1895, .714 inch on 16 days in 1891, and a twenty-five years' (1865-1889) average of 4.350 inches on 34.5 days.

At Knockdolian, Greystones, Co. Wicklow, 1.635 inches of rain fell in February on 16 days. The heaviest fall in 24 hours was .425 inch on the 17th. The total fall to February 28th inclusive was 3.980 inches on 29 days, compared with 5.190 inches on 37 days in 1897, and only 1.940 inches on but 17 days in 1896.

The rainfall in February at Cloneevin, Killiney, Co. Dublin, amounted to 1.74 inches on 16 days. The average rainfall for February during 12 years (1885-96) at this station is 1.461 inches on 12.5 days. The greatest rainfall in 24 hours was .58 inch on the 17th. Snow fell on the 20th and 21st. Since January 1, the rainfall was 3.32 inches on 29 days, compared with 4.31 inches on 38 days in 1897, and 1.64 inches on 19 days in 1896.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, rain fell on 18 days in February, the total measurement being 1.607 inches. The corresponding figures for February, 1897, were 1.718 inches on 15 days. On the 25th, .332 inch was registered. At this climatological station the lowest temperature in the screen was 27.0° on the 21st, the highest was 57.0° on the 1st. Since January 1, the rainfall has been 3.923 inches on 27 days.

BRYONIN IN THE TREATMENT OF HEPATIC CONGESTION.

The *Gazette hebdomadaire de médecine et de chirurgie* for February 3, 1898, gives the following formula:—

- R. Bryonin, grain $1\frac{1}{2}$
- Sugar of milk, grains 60
- Gum arabic, grains 15
- Syrup, a sufficiency.

M. Divide into a hundred granules. One to be taken every two hours until the bowels are sufficiently moved.—*N. Y. Med. Jour.*, March 19, 1898.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

The Dietetic Treatment of Disease.

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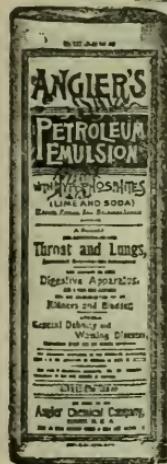


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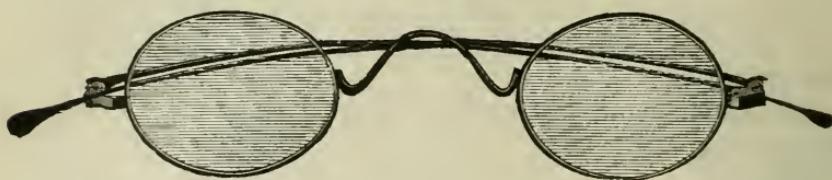
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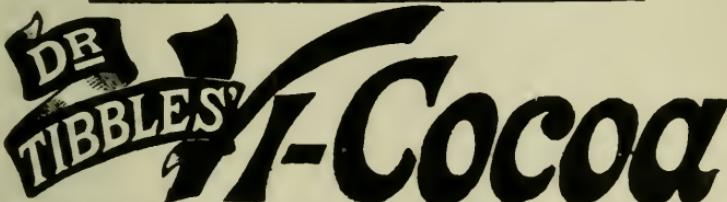
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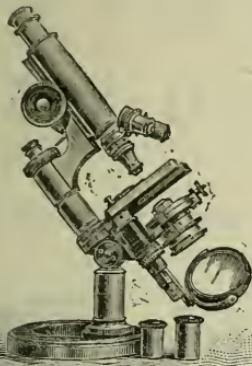
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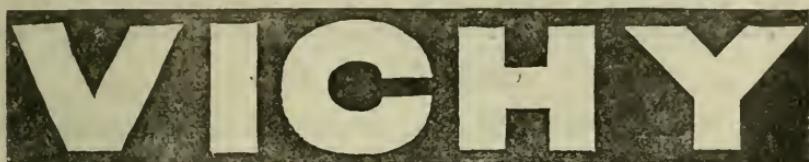
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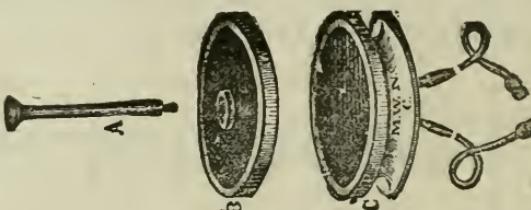
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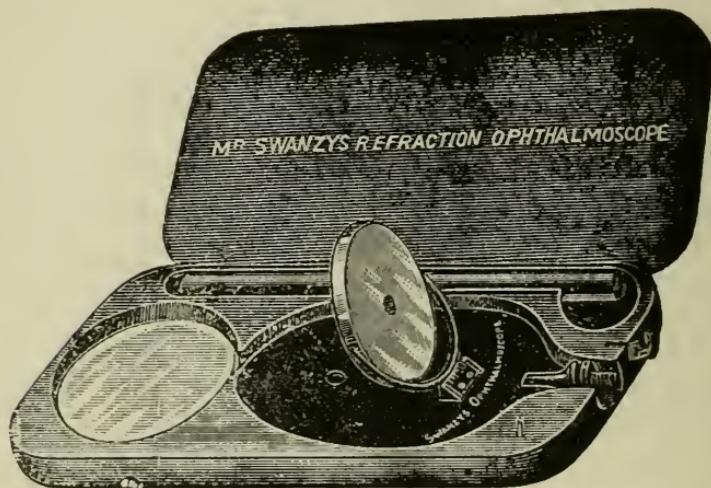
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The following extracts from the Medical Journals, &c., sufficiently indicate its high character, and the estimation in which it is held alike by the Medical Profession and by the Public:—

The LANCET of March 25th, 1882, says:—

"We have on a previous occasion noticed some of Mr. Benger's admirable preparations. Those now before us are not less satisfactory."

The BRITISH MEDICAL JOURNAL. August 25th, 1883, says:—

"Benger's Food has by its excellence established a reputation of its own."

The ILLUSTRATED MEDICAL NEWS, Dec. 22nd, 1888, says:—

"Benger's Food is a preparation devised on original lines, and which we can speak of in the highest terms. . . . Infants do remarkably well on it, and it is most suitable for many conditions in adults and old people. Amongst other things, we may mention that this food has been found extremely useful in the Summer Diarrhoea met with in some of our Colonies, where the distaste for food and difficulty of digestion are very marked. There is certainly a great future before it."

The LONDON MEDICAL RECORD, March 15th, 1882, says:—

"It is palatable and excellent in every way. It is taken readily both by adults and children. We have given it in very many cases with the most marked benefit, patients frequently retaining it after every other food has been rejected. For children who throw up their food in curdled masses invaluable."

The JOURNAL DE MÉDECINE DE PARIS. March 17th, 1889, says —

"C'est un exemple heureux de l'application des données de la science à la pratique, et nous ne doutons pas que ce produit ne jouisse bientôt en France de la grande vogue qu'il s'est légitimement acquise en Angleterre."

The HEALTH JOURNAL, November, 1883, says:—

"We direct especial attention to this article because it is a good illustration of the practical application of scientific knowledge to one of the everyday requirements of mankind."

From an EMINENT SURGEON.

"After a lengthened experience of Foods, both at home and in India, I consider 'Benger's Food' incomparably superior to any I have ever prescribed."

A MEDICAL MAN writes:—

"This particular food is the only one I have been able to take constantly and with advantage I have prescribed it for others with the best results."

EXTRACTS FROM PRIVATE LETTERS.

The Countess of _____ writes:—"I really cannot resist telling you of the marvellous results of Benger's Food." Not only am I quite renovated by a cupful every morning, but my daughter is taking it and finds great benefit."

"I consider that, humanly speaking, 'Benger's Food' entirely saved baby's life. I had tried four other well-known foods, but he could digest nothing until we began the 'Benger.' He is now rosy and fattening rapidly."

"If every mother knew of its value no other would be used."

BENGER'S FOOD is sold in Tins at 1s. 6d., 2s. 6d. 5s., & 10s each by Chemists, &c., everywhere.

"APENTA"

THE BEST NATURAL APERIENT WATER.

Bottled at the Springs, Buda Pest, Hungary, under
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CONCLUSIONS

from clinical observations on the action and value of APENTA WATER in obstinate constipation by Professor W. S. BOGOSLOWSKY, Director of the Pharmacological Institute of the Moscow University, &c., &c.:—

" Systematic treatment with APENTA WATER is especially indicated for constipation produced by Atony of the bowels, and APENTA possesses without doubt this advantage over other aperients, that its use does not give rise to subsequent constipation.

" By suitable doses of this water the bowels act freely, and considerable quantities of bile are evacuated. The action of APENTA WATER is more gentle than that of the bitter waters most known with us, because it contains less calcium sulphate and no magnesium chloride. It is probably due to this circumstance that the crampy pains generally observed when aperients are employed, are entirely absent in the case of APENTA.

" The efficiency of APENTA as a remedy for the systematic treatment of obesity in general is clinically established."

A Translation of the Report of Professor W. S. Bogoslowsky, read at the Meeting of the Society for the Preservation of Public Health, Moscow, will be forwarded on application to

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